VOLUME XLIII NUMBER THREE

THE NATIONAL GEOGRAPHIC MAGAZINE

MARCH, 1923

CONTENTS

SIXTEEN PAGES OF ILLUSTRATIONS IN FULL COLOR

Along the Old Spanish Road in Mexico
With 37 Illustrations — HERBERT COREY

In the Land of the Montezumas
16 Illustrations in Color

Holland's War with the Sea
With 24 Illustrations — JAMES HOWARD GORE

In the Land of Windmills and Wooden Shoes
16 Duotone Illustrations

The Wends of the Spreewald
With 12 Illustrations — FREDERICK SIMPICH

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TO carry out the purposes for which it was founded thirty-four years ago, the National Geographic Society publishes this Magazine. All receipts are invested in the Magazine itself or expended directly to promote geographic knowledge.

ARTICLES and photographs are desired. For material which the Magazine can use, generous remuneration is made. Contributions should be accompanied by an addressed return envelope and postage.

IMMEDIATELY after the terrific eruption of the world's largest crater, Mt. Katmai, in Alaska, a National Geographic Society expedition was sent to make observations of this remarkable phenomenon. Four expeditions have followed and the extraordinary scientific data resultant given to the world. In this vicinity an eighth wonder of the world was discovered and explored—"The Valley of Ten Thousand Smokes," a vast area of steaming, spouting fissures. As a result of The Society's discoveries this area has been created a National Monument by proclamation of the President of the United States.

AT an expense of over $50,000 The Society sent a notable series of expeditions into Peru to investigate the traces of the Inca race. Their discoveries form a large share of our knowledge of a civilization which was waning when Pizarro first set foot in Peru.

THE Society also had the honor of subscribing a substantial sum to the historic expedition of Admiral Peary, who discovered the North Pole.

NOT long ago The Society granted $25,000, and in addition $75,000 was given by individual members through The Society to the Federal Government when the congressional appropriation for the purchase was insufficient, and the finest of the giant sequoia trees of California were thereby saved for the American people and incorporated into a National Park.

THE Society is conducting extensive explorations and excavations in northwestern New Mexico, which was one of the most densely populated areas in North America before Columbus came, a region where prehistoric peoples lived in vast communal dwellings whose ruins are ranked second to none of ancient times in point of architecture, and whose customs, ceremonies and name have been engulfed in an oblivion more complete than any other people who left traces comparable to theirs.

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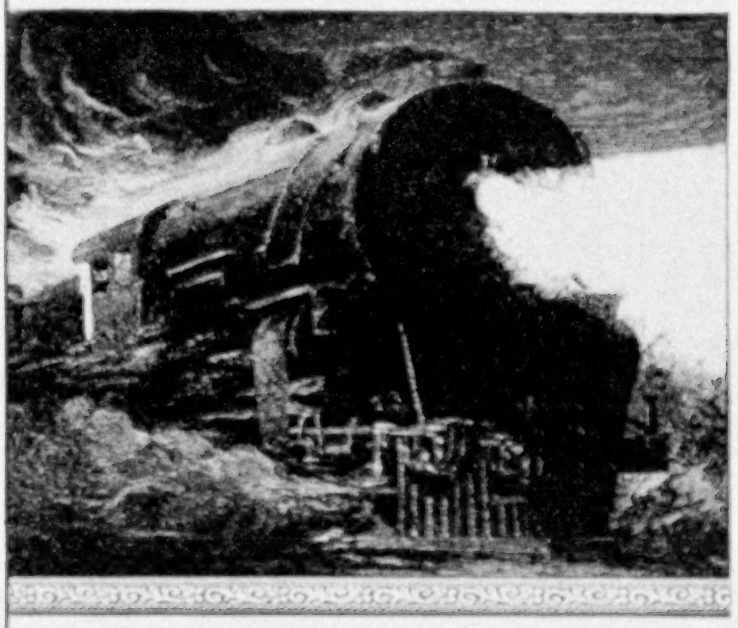
Hamilton No. 920 in "Byron" Case $172

In its case of fashionable green or white gold (14k engraved), this watch is a thing of beauty. 23-jewel, five-position adjusted movement. Attractive dials with raised gold numerals.



A reputation for accuracy

WHEN you want to know the correct time, consult a watch that has a reputation for accuracy. The Hamilton's reputation for accuracy is so great that it has become known as the Railroad Timekeeper of America.

To the virtue of accuracy, the Hamilton Watch adds that other requisite of a modern timepiece—beauty. The Hamilton is a beautiful object that men and women take pride in owning. Men like the Hamilton Watch because it keeps accurate time. Women also like it because it is dependable as well as dainty.

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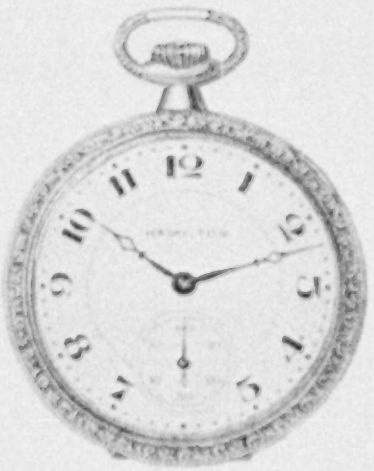
"The Watch of Railroad Accuracy"

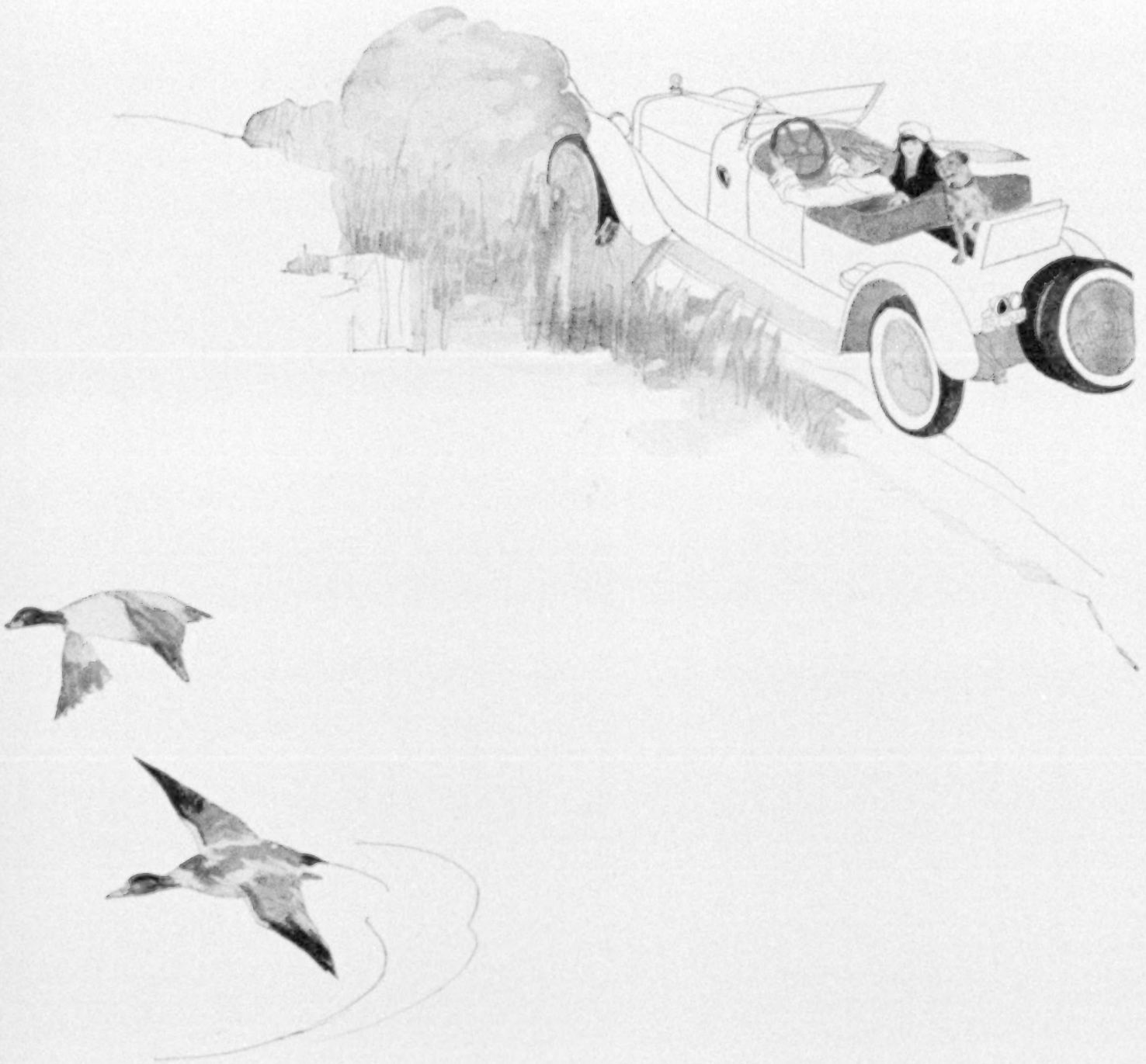
Hamilton No. 914 in "Lancaster" Case $65

The watch oftoday and of tomorrow, too, is this 17-jewel, three-position adjusted movement. Its case is engraved green gold, and the dial hand-engraved, with inlaid enamel numerals.



Hamilton No. 910 in "Franklin" Case $46

You'd like this watch, with its fancy metal dial, 17-jewel, adjusted movement, and engraved green or white gold-filled case.



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SOON, soon the gypsy call of spring—and the urge of open roads—and that warm glow of pride experienced owners enjoy with Mason Cords. For, no matter how grueling the way, or how endless the unrolled miles, there is ever that sportive zest on cords so distinctive, so rugged, so dependable.

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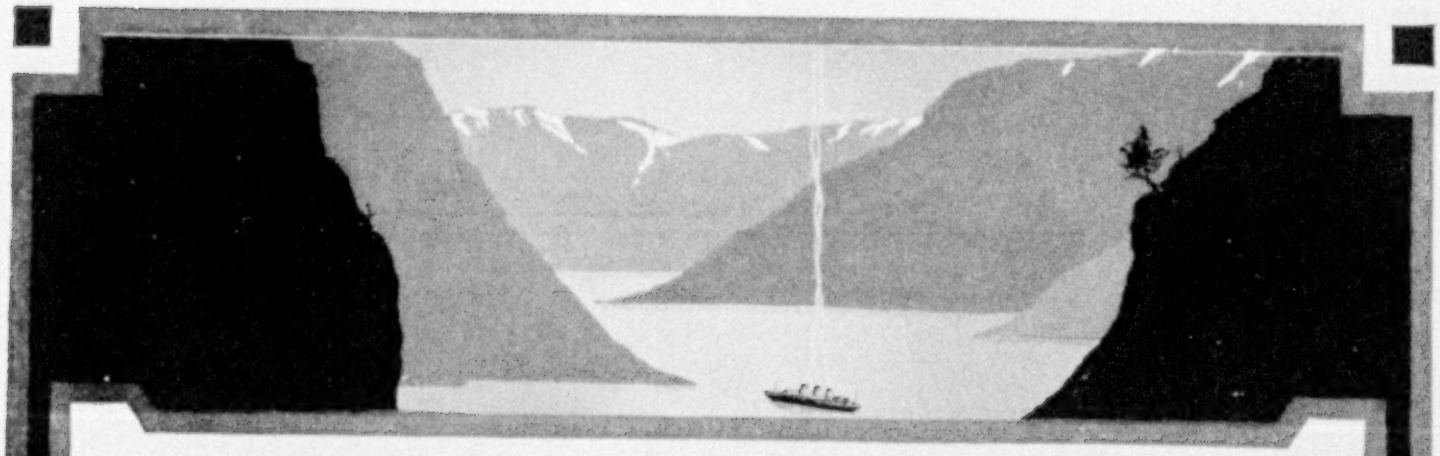

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A Coach Upside Down—

Have You Seen It?

Dealers throughout the country are displaying Coach bodies minus top and side coverings—showing frame work and materials. Some have rolled Coaches over on their tops to demonstrate sturdiness of construction. It is a dramatic proof of the first-class design and material of the Coach.

Touring - - $1045 Cabriolet - - $1145 Coach - - $1145

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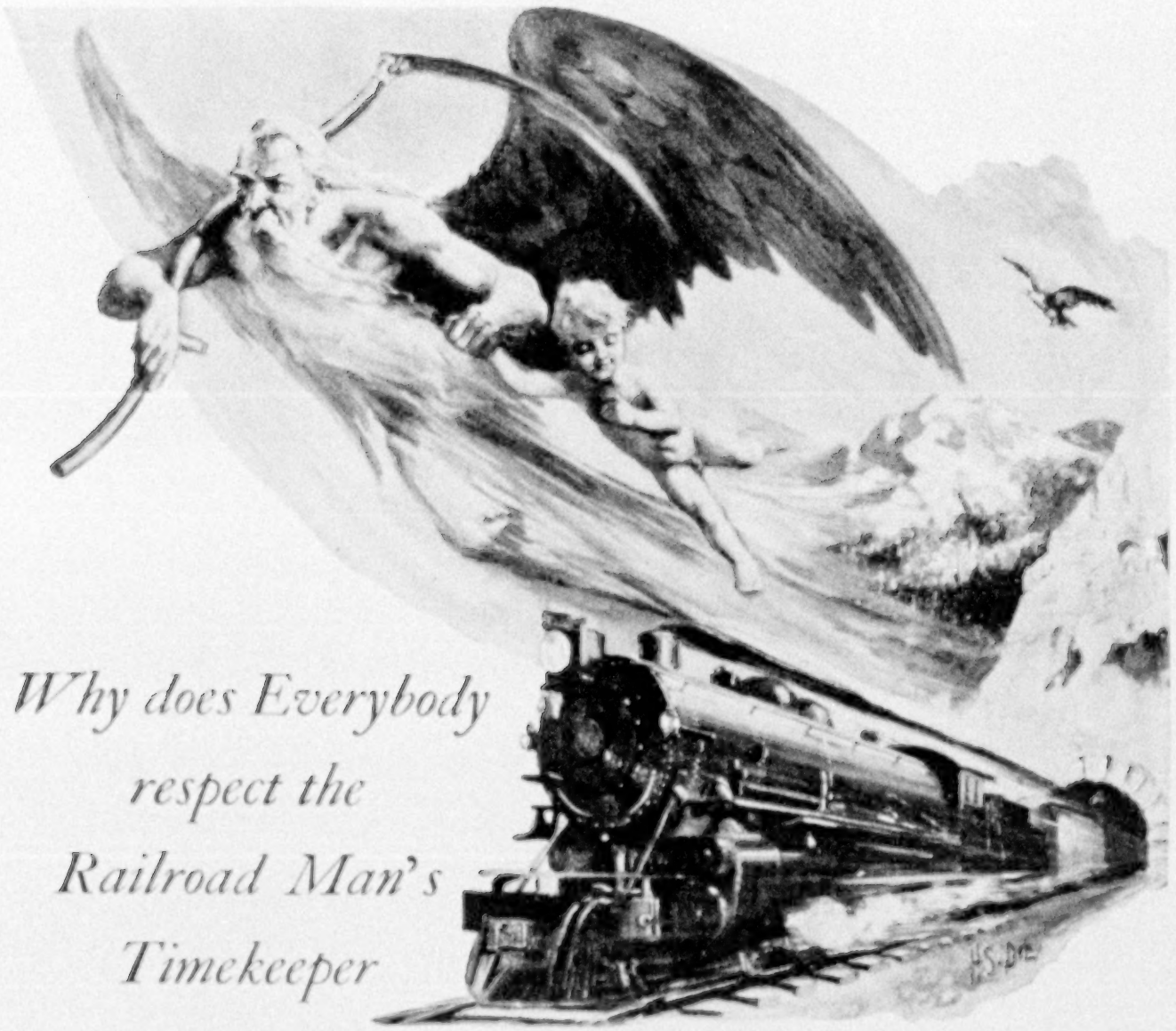


Why does Everybody respect the Railroad Man's Timekeeper

IF all the people in America were railroad operators, the nation would change its attitude toward watches overnight.

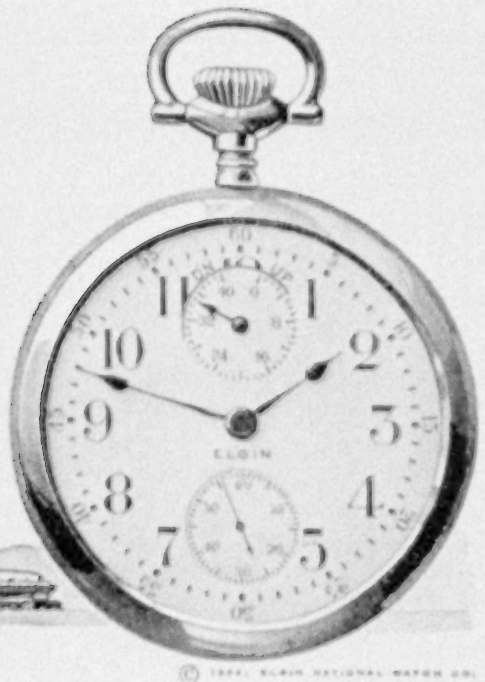
Railroads impose on the watchmakers a rigid responsibility.

The Elgin Watchmakers welcome this responsibility as an opportunity to *broaden the Elgin Service* in precise timekeeping.

It points the way to make *better watches for everybody*—applying railroad standards of accuracy to Elgin Thin Model and Women's Wrist Watches as well.

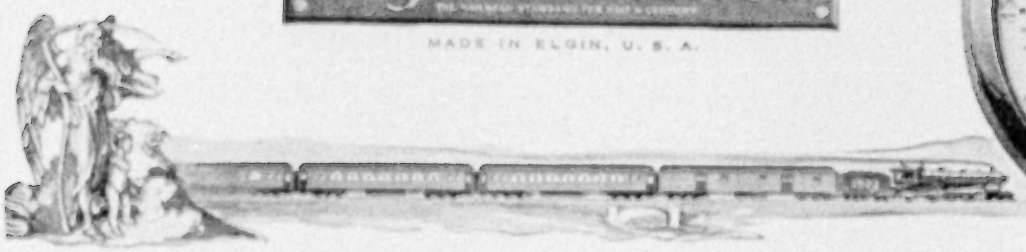
Father Time has been Elgin's official trademark for over fifty years. One of America's favorite railroad models bears his name.

It is pictured below with the Elgin Winding Indicator, a device of great value to Railroad Men. This is an almost absolute safeguard against "run-downs," a common and disastrous cause of trouble. A glance at the indicator shows the Railroad Man exactly how much power his Elgin has in reserve.

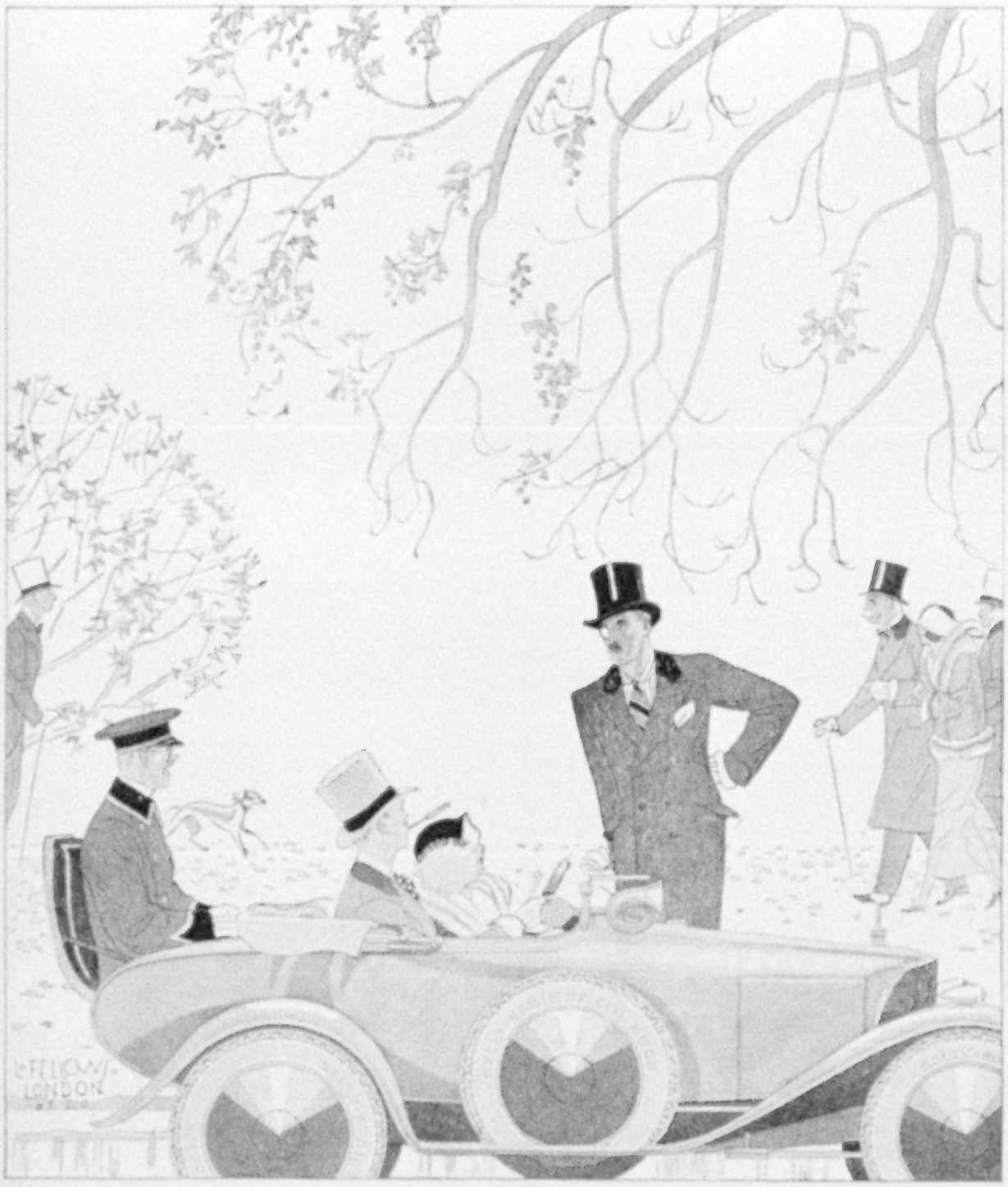


Elgin Watches

MADE IN ELGIN, U. S. A.



© 1931, ELGIN NATIONAL WATCH CO.



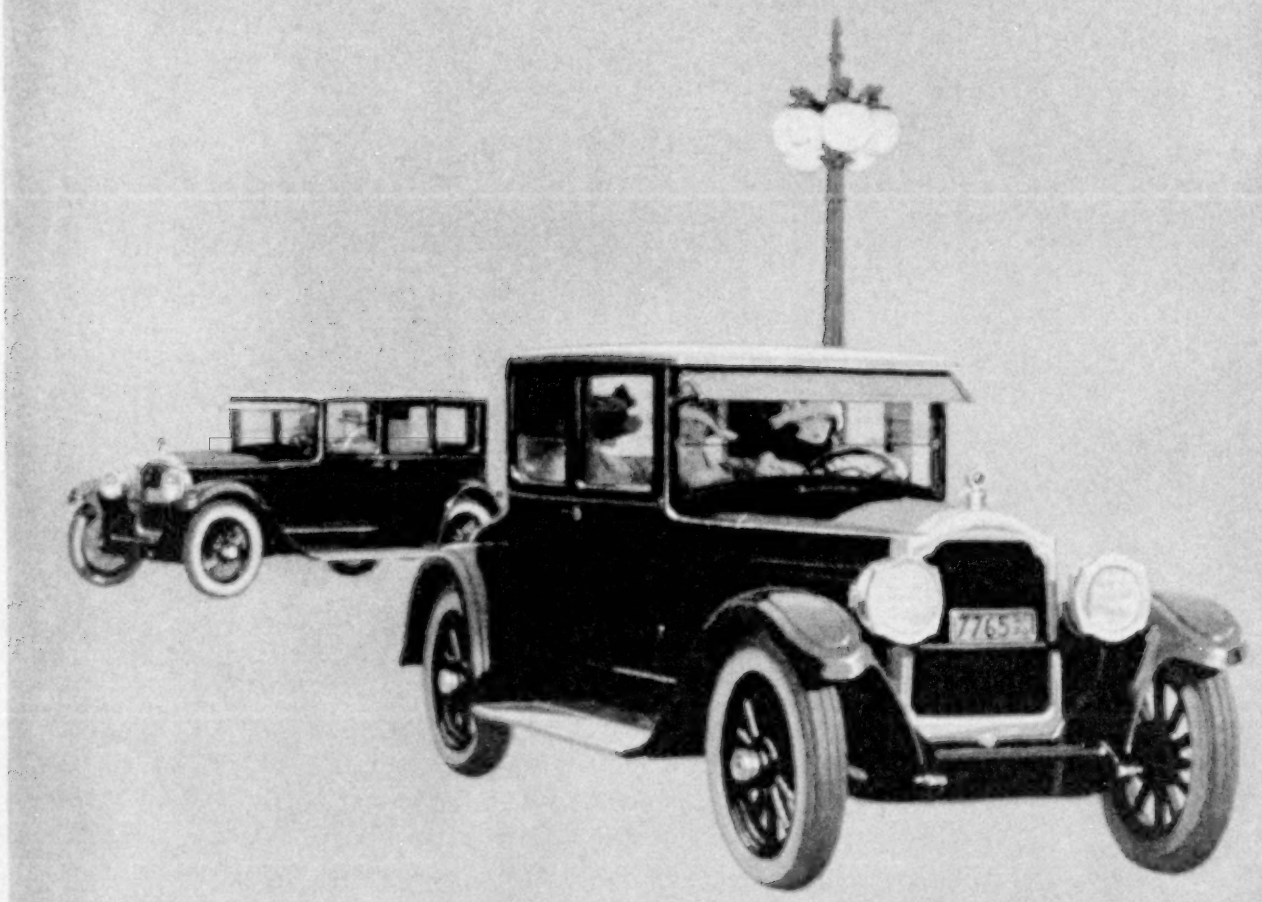
*HYDE PARK, LONDON**

Hon. Freddy—"Haven't the foggiest idea, old chap—Ridley, do we use tyres?"
Ridley (waxing warm)—"Kelly-Springfields, sir—American, nothing to touch 'em—never blow or skid—a bit of orl right, sir, if you ask me!"

THE qualities which a motorist seeks in tires are the same practically all over the world. These qualities are long mileage, freedom from trouble, safety from skidding, and low cost. Since Kellys combine all these qualities to a marked degree, it is not surprising that they have become internationally famous. It costs *no more* to buy a Kelly.

**Drawing and dialogue by Laurence Fellows London*

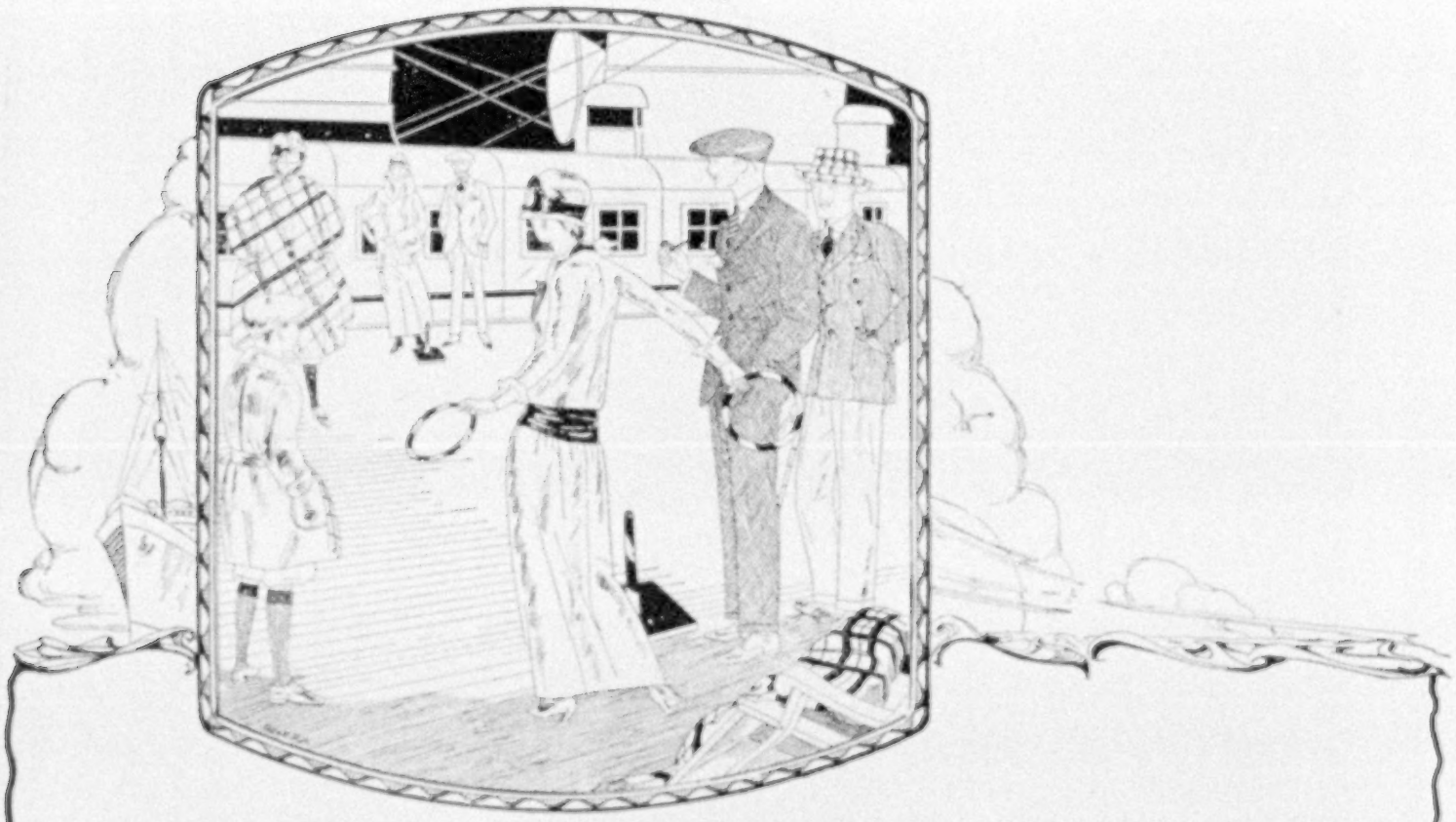
PACKARD



In addition to its other fine qualities, it is doubtful if there has ever been a car which handles with the delightful ease that characterizes the Packard.

This is not simply our own conviction—it is probably safe to say that this opinion is universal among owners of the Packard Single-Six.

Touring Car, Five-Passenger, $2485
at Detroit



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Raised gold figures, Louis dial $10 *extra*

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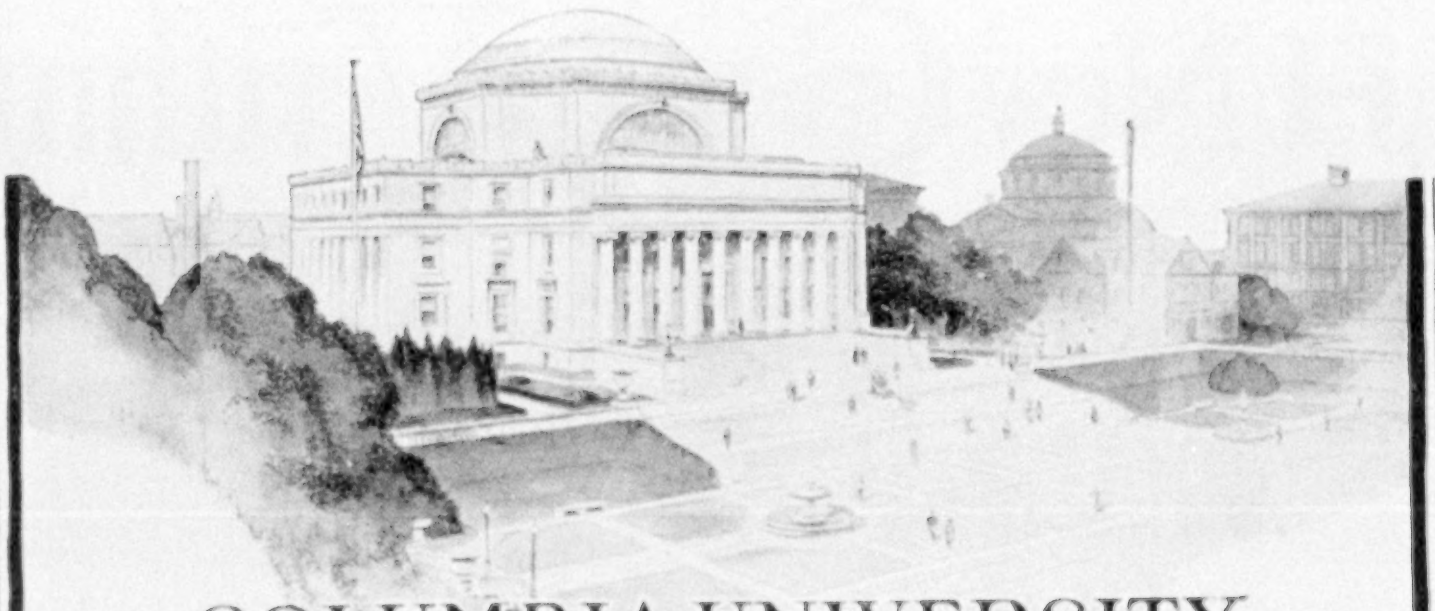

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You may be one of the many thousands of college graduates who would like to carry certain studies farther but who have heretofore lacked proper facilities for such work.

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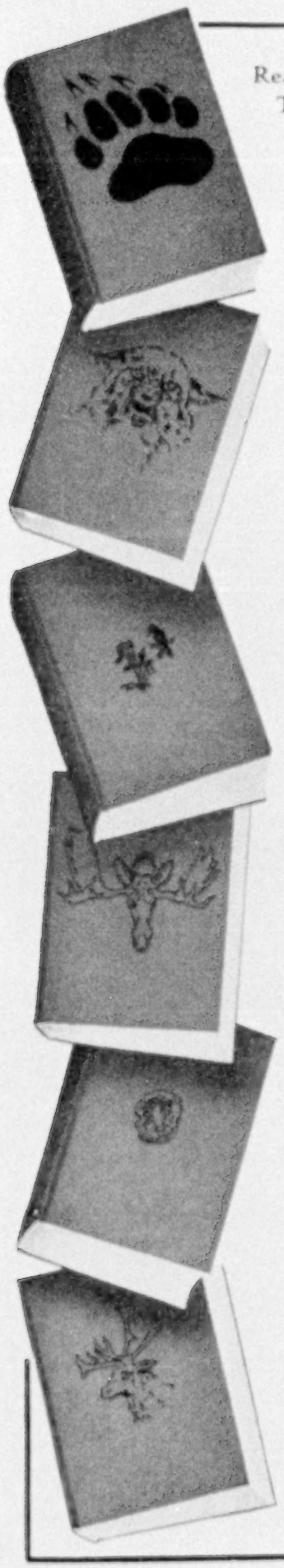

Read These Extracts—
Then Send Today

Wild Animals at Home

"As he approached within forty yards, 'Now is your chance.' Then the wicked 'crack' of the rifle, the snort and whirl of the great, gray, looming brute, and a second shot as he reached the willows, only to go down with a crash and sob his life out on the ground."—Page 79

Wild Animal Ways

"Another swing, a feint, and the Bear rushed in. Thud—thud—thud—went the huge paws. They staggered the Boar but did not down him. His white knives flashed with upward slash. As they reeled apart, the Boar was bruised, but the Bear had half a dozen bleeding rips."—Page 82

Woodland Tales

"When the leaves have fallen and before yet the Ice-king is here, there come, for a little while, the calm, dreamy days when the Great Spirit is smoking his pipe and the smoke is on the land. The Red-men call them the Smoking Days, but we call them Indian Summer."—Page 126

Two Little Savages

"The Fox sprung straight for the sleeper. Sleeping? Oh, no! Bunny was playing his own game. The moment the Fox leaped, he leaped with equal vigor the opposite way and out under his enemy, so Reynard landed on the empty bunch of grass."—Page 354

Rolf in the Woods

"The buck made a furious lunge and Rolf went down. He was pinned at once, the fierce brute above him pressing on his chest, striving to bring its horns to bear. His only salvation had been that their wide spread gave his body room between."—Page 150

The Book of Woodcraft

"The old buffalo hunters had an established signal. Two shots in rapid succession, an interval of five seconds, then one shot. This means, 'Where are you?' The answer, exactly the same, means, 'Here I am; what do you want?'"—Page 165.

2,275 Pages of Fascinating Wild Animal and Nature Stories, Indian Tales, Woodcraft — Profusely Illustrated with the Author's Own Inimitable Drawings and Photographs—Sent on 5 Days' FREE EXAMINATION

Ernest Thompson Seton

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For Seton is much more than a wonderful woodsman and naturalist. He loves every wild animal, bird, tree, and flower—everything they do and everything they are. He seems to be able to get into their very souls. In his gripping stories they become real beings for you. They live and act—they play and fight—they match their wits against each other and against man—and you live with them, almost within their skins, as they do it.

Here are six wonderful books for the young in spirit and the young in fact. The very titles of the tales—tales like "The Cute Coyote," "Old Silver-grizzle," "Horns and Hoofs and Legs of Speed"—and then stories like "Coaly-Bay, the Outlaw Horse," "Billy, the Dog That Made Good," and "The Wild Geese of Wyndygoul"—hint of the romance woven in with the most acute and accurate observation of life and habits—secrets of animal ways known only to the few.

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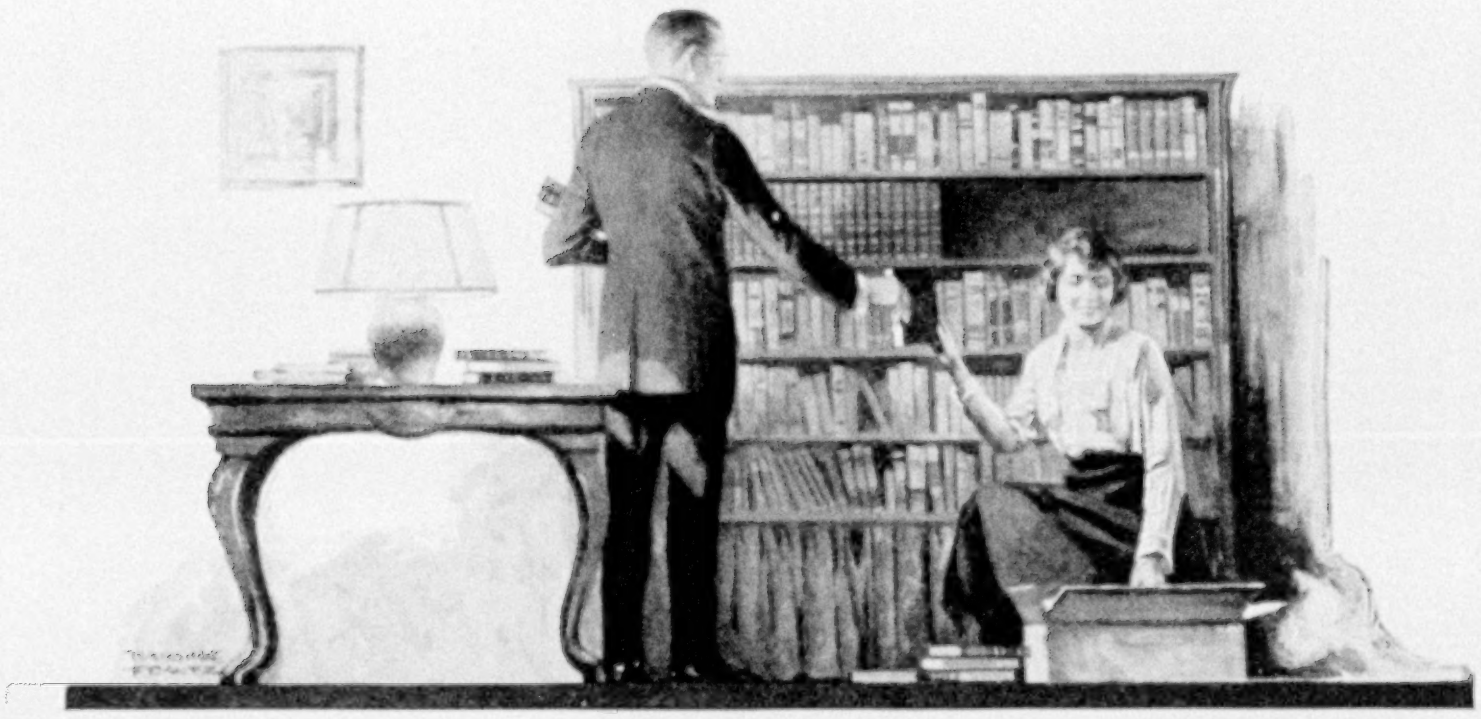

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WHAT SHOULD a family's very first investment be?

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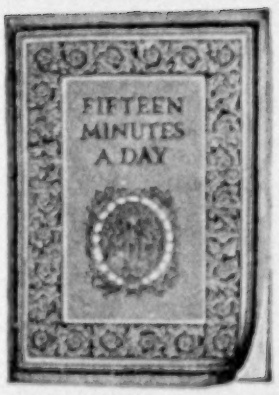

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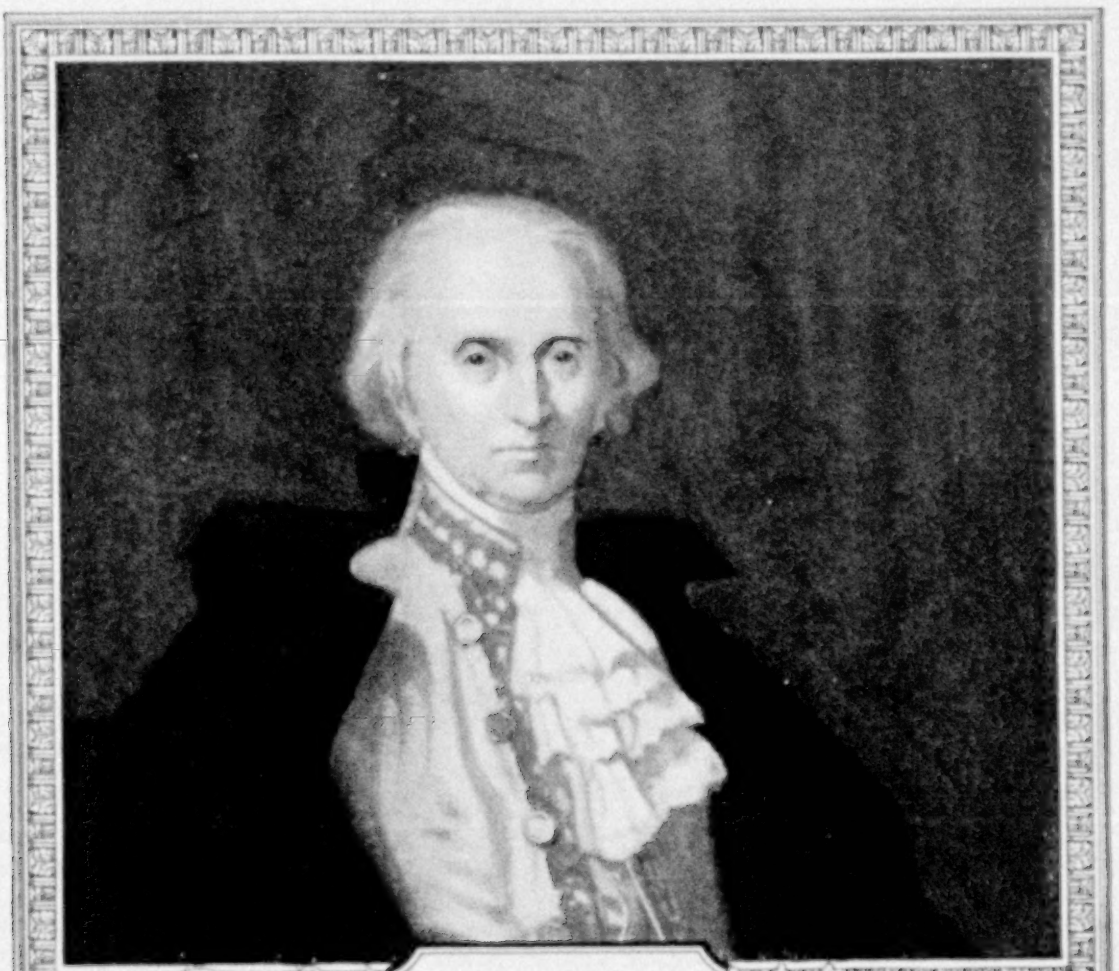

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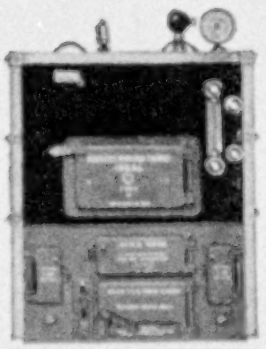

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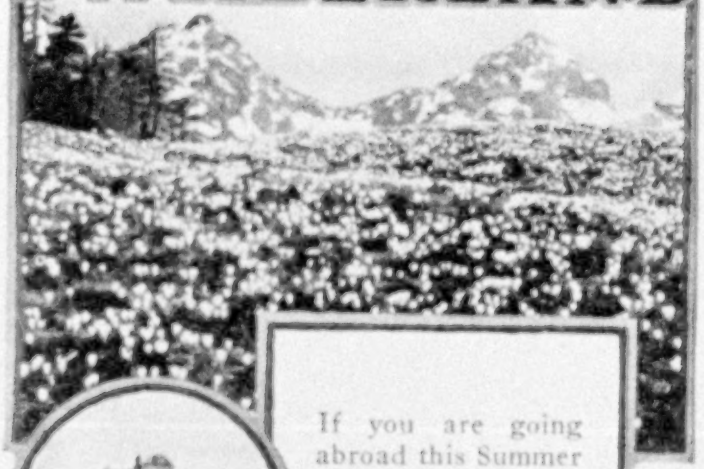

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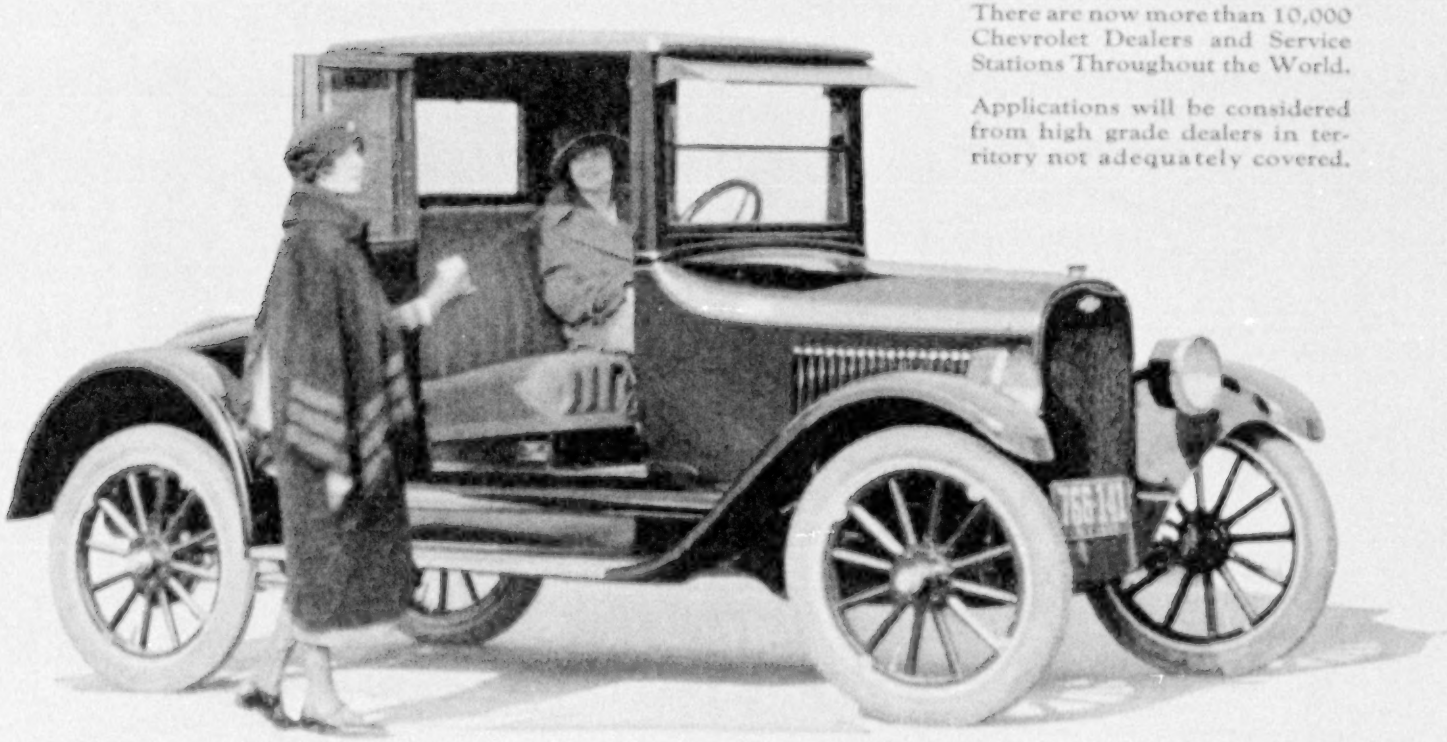

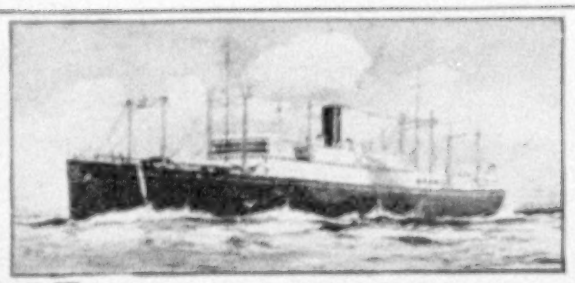

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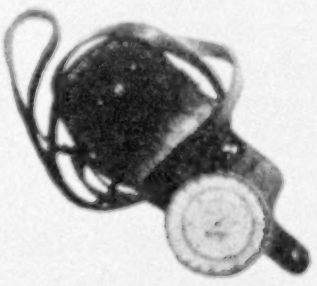

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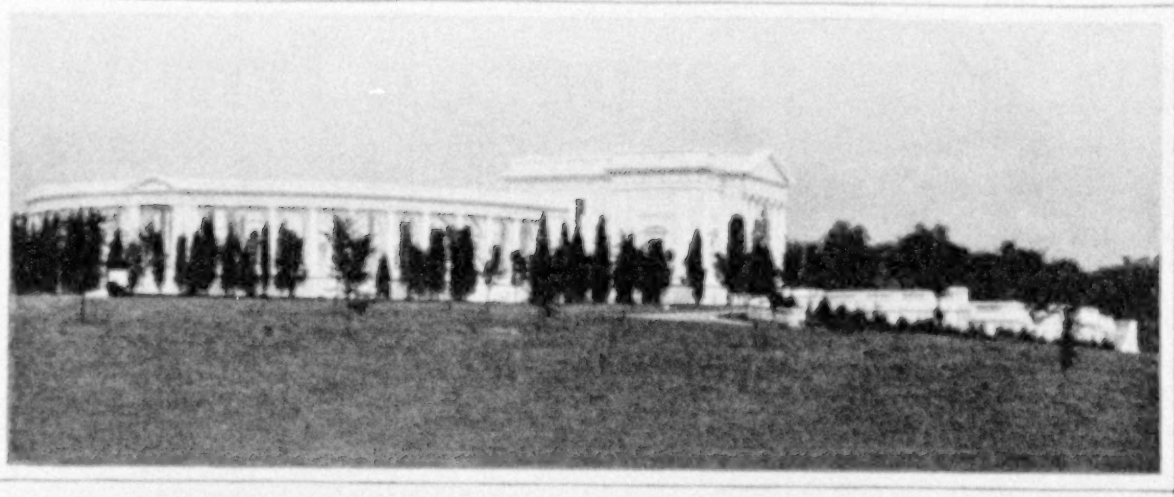

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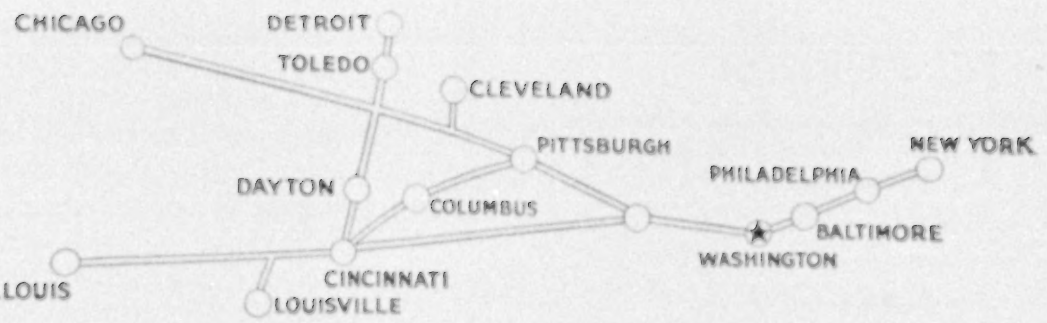

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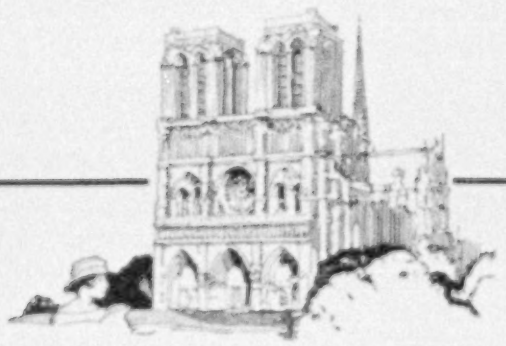

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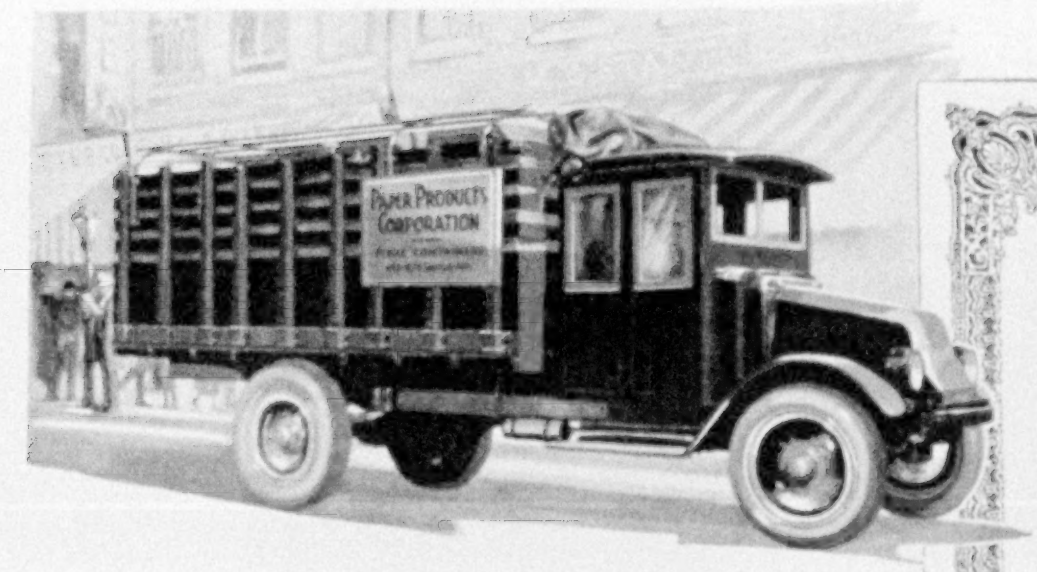

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VOL. XLIII, No. 3 WASHINGTON MARCH, 1923

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ALONG THE OLD SPANISH ROAD IN MEXICO

Life Among the People of Nayarit and Jalisco, Two of the Richest States of the Southern Republic

BY HERBERT COREY

AUTHOR OF "ACROSS THE EQUATOR WITH THE AMERICAN NAVY," "ON THE MONASTIR ROAD," "ANDORRA, A UNIQUE REPUBLIC," AND "ADVENTURING DOWN THE WEST COAST OF MEXICO," IN THE NATIONAL GEOGRAPHIC MAGAZINE

With Illustrations from Photographs by Clifton Adams, Staff Photographer, National Geographic Magazine

WE discovered the Old Spanish Road by accident—an unavoidable accident, of course—such an accident as would be the discovery of the sea by a man marooned upon a desert island. Yet it was a discovery for all that, for we had never heard of it before. It is the oldest road upon the North American Continent.

The morning we found it we had climbed the hill to visit the decaying ruins of Old San Blas—Old San Blas as distinguished from that newer San Blas that is slowly dissolving in sun and rain upon the beach below. Chance had decanted us from the sea at this tiny port on the Pacific coast of Mexico in the state of Nayarit. Our true reason for being there was that we had no choice; but we hid this unpleasant truth from ourselves.

Toward the black end of his career in Mexico, Hernan Cortez fought his way through the jungle to the mouth of the Santiago River, and there built four little ships and sailed away in the hope of making further discoveries with which to propitiate the Spanish king. It was at San Blas that his star began definitely to decline. From that day he was dogged by misfortune.

"We must see San Blas," we told ourselves. The decision enabled us to leave the *Sin Nombre*—on which small craft we had sailed circuitously down the coast from Mazatlan—with some honor; otherwise we would have been put ashore in a banana wilderness haunted by snakes and the unpleasant spotted cats the natives call *tigres*, and in which the trails merely crisscross from one tiny native village to another without getting anywhere.

But we had exhausted new San Blas. The tame cranes, the parrots, the donkeys bearing racks of twisted sticks in which were set the water-jars, had ceased to amuse us. Even the pig and the boy had palled.

That morning we had been awakened at the usual hour by the sunlight, which streaked in through the cracks of the wooden blinds that filled the glassless windows of our room in the House of the Black Spider, as we had ungratefully named our inn. Mosquitoes had bedeviled us. The floor had not been swept since the departure of the traveler who had preceded us, and who had apparently been accompanied by his faithful horse. Bugs hurried over it on their business. We had carefully shaken out our boots lest a

WATER-CARRIERS IN SAN BLAS, NAYARIT

The donkeys are harnessed with racks of twisted sticks in which are set the water-jars.

tarantula had camped in them for the night. One hears unpleasant stories of toes and tarantulas.

BREAKFAST IN A WAYSIDE INN ON THE MEXICAN COAST

There seems no doubt that the domesticity of our expedition was ruffled that day. I had snapped at Adams. Adams had assumed that air of early Christian martyrdom which is so unbearable before breakfast.

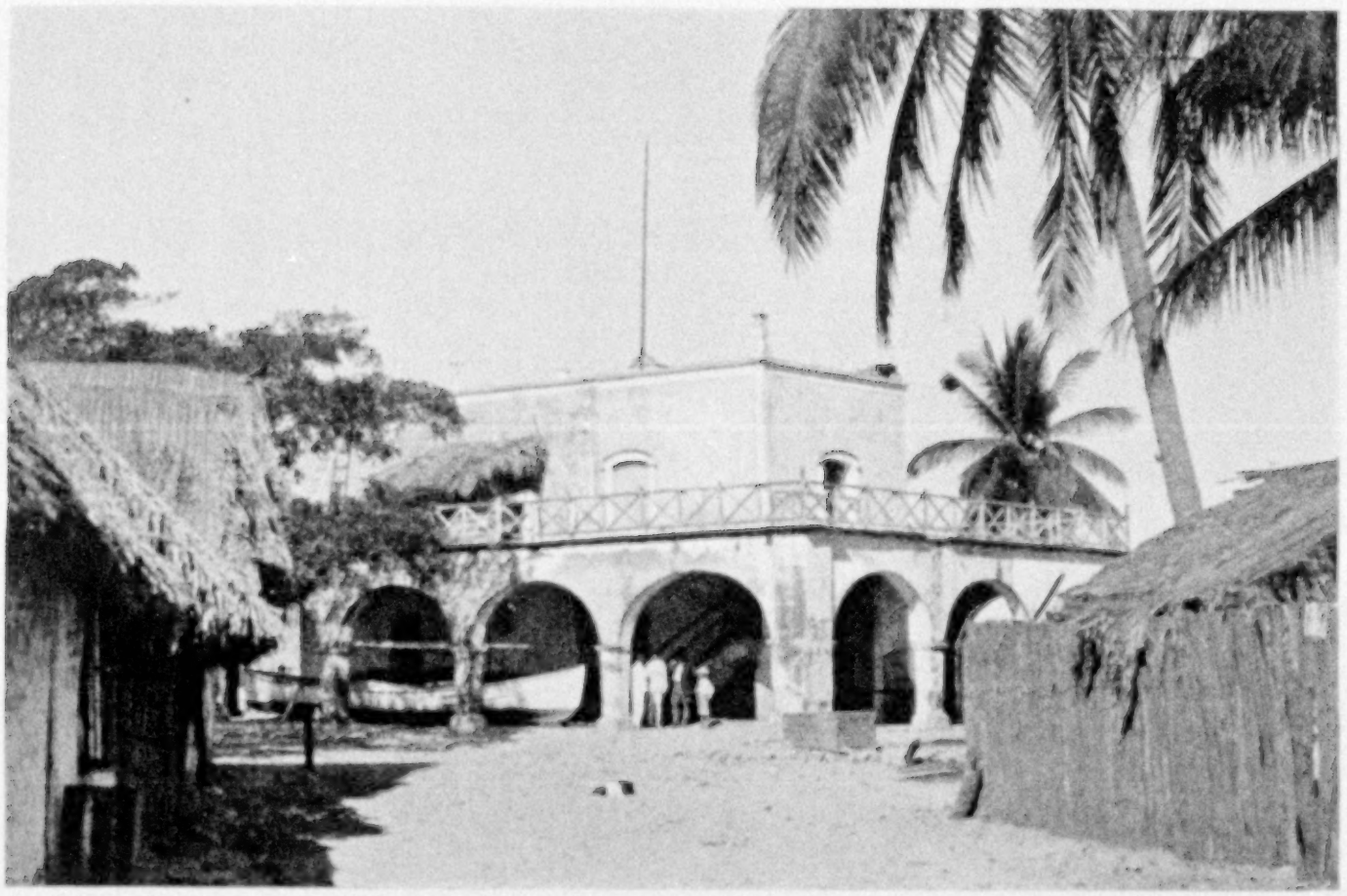
Even that meal had failed to soothe us, although in retrospect it seems utterly delightful. It had been served under the wide veranda of red tile, open to the tangled garden in the rear. Hens wandered about clucking happily. A great blackbird, whose brilliant coat cast gleams of purple and green, barked "perro" at intervals and the half-asleep dog snarled in reply.

An Indian crone sat cross-legged under a tree engaged in mysterious household tasks. Our fat and amiable landlady pegged away, in the intervals between cups of coffee and delectably light and sweetened biscuits with sugar encrusted on the tops, at our family affairs. She wished to know if we proposed to return to our wives. The cool breath of morning played about us.

Out from the shadow of the tiled roof the sun beat down in a torrent, little currents of heated air shivered upward, and the distance was shrouded in a haze. The street blazed White-clad peons sat motionless in the blue shadows of the one-story houses of wattle and adobe or chatted with the marketwomen under the porticoes.

PIGS AND CHILDREN SLEEP TOGETHER IN THE DUST

A boy trotted past us, his head bare to the sun, one hand dug in his sleepy eyes. His apparel might safely be described as quaint. It was a sort of a frill of cotton cloth buttoned around the neck and descending slightly below the waist. He might, at a venture, be eight years old. Finding a pleasant little dust-heap by the side of the market-house where a dog or two and a pig or two were snoring companionably, he routed them out. In a moment he was asleep, his little legs in



THE CUSTOMHOUSE OF SAN BLAS, A FINE OLD BUILDING WITH AN ARCHED VERANDA NEAR THE WATERFRONT

In the days of Spanish rule in Mexico, San Blas was an important port, through which came the luxuries of the East, but the old harbor has filled with sand and only the smallest coastwise vessels now venture in.

the roadway, one arm thrown across his eyes.

One of the dispossessed pigs returned. One could almost see the thought tearing through that pig's brain. He stood for a moment, head up, silent, like a somewhat soiled statue. Then he moved forward, one cautious foot at a time, laid himself down by the boy, pillowed his dusty jowl on the urchin's body, and drifted across the bar of consciousness.

It was an affecting tableau—Innocence and the Pig, or something like that—but the pig's content betrayed him. Before Adams could get there with the camera he had breathed a snore of happiness and the boy waked up. He was a furious child. Yet being kicked with the bare toe cannot permanently discourage a pig. Long afterward we saw the boy again asleep in the dust. From the near distance watched a wistful pig.

In the 16th century the Old Spanish Road was built across Mexico in a great Y. The stem of the Y was planted at Vera Cruz, on the Gulf of Mexico, where the Spanish ships were loaded for the perilous voyage home through seas swept by privateers. The northernmost prong of the Y touched the Pacific at San Blas, Nayarit, and the southern at Acapulco.

WHAT HISTORY TELLS OF THE SPANISH ROAD ACROSS MEXICO

Under Spanish rule San Blas was an important port, through which came the luxuries of the East to Mexico and Spain. This seems improbable now, for the old harbor has been so filled with sand that its trade is mostly with canoes. Only the very smallest of the little coastwise boats dare venture in. Yet the solid arches of the old customhouse are proof enough.

Thanks to The Road, the west-bound convoys from the Philippines were spared the perilous traverse around Cape Horn. The Road tapped the fat mining regions of the Sierra Madre. The most extraordinary silver mines of the world are at Guanajuato, Aguascalientes, Zacatecas. It

ONE OF THE FINEST EXAMPLES OF A FLAT ARCH EXTANT IN MEXICO

The tropical jungle has swept over the Spanish church at San Blas, but its ravages have not destroyed the beauty of its flat arch, for whose construction the friars of old held the secret.

was a military road, too, thrust right at the heart of the Indian resistance by their masters. From Vera Cruz to Guadalajara, the second largest city in Mexico, it was a broad and well-metaled highway. From Guadalajara to the coast the two prongs become at intervals exaggerated mule paths.

THE ROAD HAD BEEN AN INDIAN TRAIL FOR CENTURIES

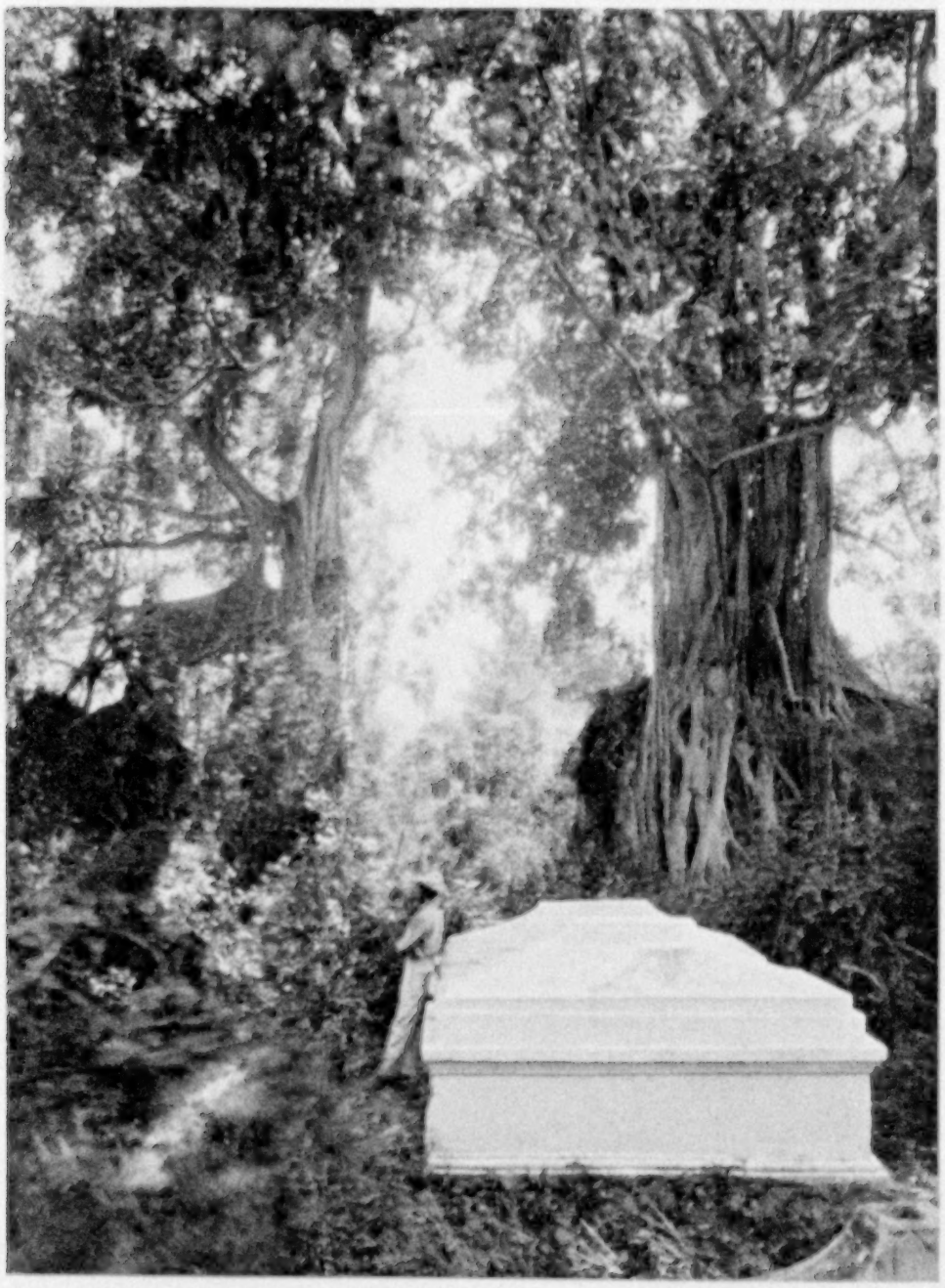
Indian tradition, backed by Indian monuments, establishes its great age. Modern archeologists refuse to believe that the Aztecs fought their way south to the conquest of the Valley of Mexico from a point north of what is now the American border; yet there is evidence that this old trail was used by the Indians for centuries before the Spaniards came. It followed the rolling contours of the hills and ran through the passes for the watercourses.

When the Spaniards began to develop the western slope of the Sierra Madre it was metaled at intervals and broadened

for pack-mule and ox-cart uses. Then it became one of the main instruments of the Spanish colonial system. The Conquistadores were well grounded in the essentials and realized that without good roads neither war nor commerce may prosper.

The main highway was defended by forts or by minor outposts at strategic points, and from it lesser trails were driven into the hills or the more inviting valleys, for the convenience of priest and miner.

Not until Porfirio Diaz began to build the net of Mexican railroads did The Road begin to fall into disuse, and even today there are wide stretches of country which can only be reached by it. In these back blocks one sees the Mexico that appeared to the eyes of Baron Humboldt and Madam Calderon de la Barca. At least one makes believe.



IN THE CLUTCH OF THE JUNGLE

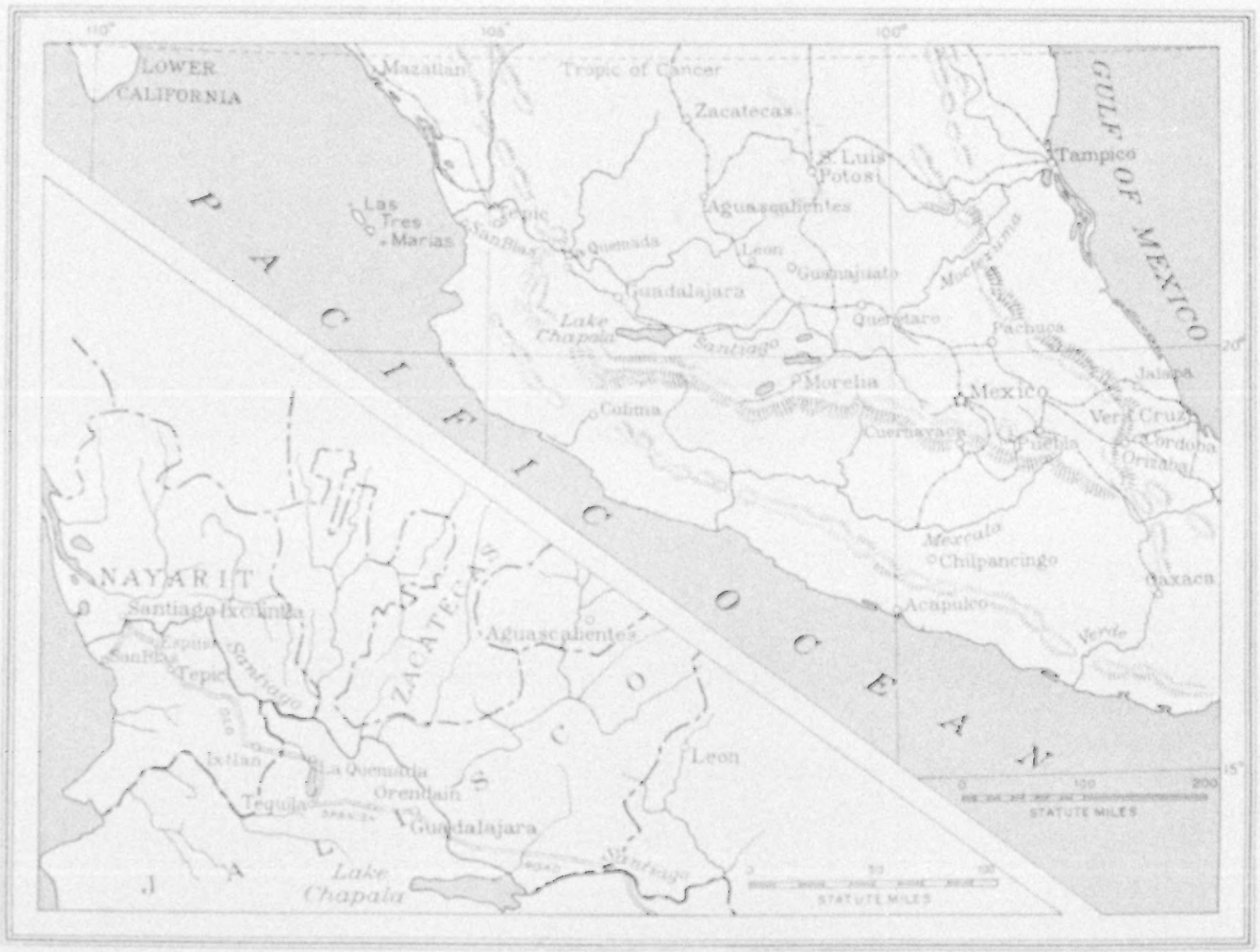
Two large wild fig trees have seized upon the shapeless bricks of what was once the entrance to the plaza of San Blas, now a cemetery in ruins.

Old San Blas proved to be a spotlight turned on the vanished centuries. One began to understand how the Spaniards worked their magic. They had selected the bastion of a hill high above the little harbor, from which their bronze cannon commanded every approach by land or sea. Some of the old cannon are still to be found in San Blas.

Then they had built strongly, as becomes a people who had many slaves. First the palace, no doubt, which was also a fort. Its heavy walls, in which little trees are thrusting, are tumbling down; then a church, for the business of the Cross was very close to their hearts; then the customhouse, through which the rich goods from the East must pass to hacienda of Mexico or court of Spain, paying a fat duty on the way.

BANDITS AND PATRIOTS HAD DESTROYED OLD STONE BRIDGES

It appeared that our amiable landlady had been telling the truth when she averred that the stage no longer comes to San Blas. No one, it seemed, visits San Blas nowadays, what with the war and the revolutions and the consequent breakdown of trade. The revolutionists or bandits—the terms are occasionally interchangeable—had blown up the fine old



Drawn by A. H. Bumstead

A SKETCH MAP OF MEXICO SHOWING THE ROUTE OF THE OLD SPANISH ROAD

stone bridges the Spaniards had built on the direct road to Tepic, and they had never been repaired. What would be the use? Other bandits or patriots would merely tear them down again, and, besides, there was no need for them. Those who wished to travel that road bestraddled mules.

But there was a less direct road through Santiago Ixcuintla, and at this town, half way to Tepic, there was an automobile. No one knew how far Santiago Ixcuintla might be in miles. Miles do not count in Mexico. Santiago was five flivver hours or nine mule hours distant.

Wherever one goes in Mexico one finds an excellent telegraph service, and the postmaster took charge of the negotiations.

In time a horrific uproar battled down the principal street, over the Spanish cobblestones. A flivver that had been repaired with wire, splinted with rawhide, bound with rope, and nailed together and twisted up made its nightmare presence known.

Its arrival was but the prelude, the orchestral opening, for the headline act of our departure. Our baggage was packed on the car precisely as, later on, it was roped and rawhided on mules. The diamond hitch and the squaw knot held it secure. We crawled through apertures into the hollows that had been left in the heart of the caravan and were off.

SENSATIONAL LEAVE-TAKING FOR THE OLD SPANISH ROAD

Dogs cascaded through the streets, barking furiously. Mothers spurted from their doorways to snatch small children from beneath the wheels. Pigs and chickens made hysterical escapes. I began to understand the attraction of public life.

We left behind the pleasant, shabby little plaza, lovely in the cool of the evening. Harsh bells sounded from the open belfry of the dingy church. One heard the earnest voice of a priest exhorting half a dozen black-clad women on the old benches. Idlers under huge

Photograph by Charles Jenkinson

THE AMERICAN CONSULATE AT ACAPULCO

Acapulco is one of the two west-coast termini of the Old Spanish Road. The northern prong of the Y ends at San Blas (see text, page 227).

sombreros, in the cupped brims of which they carried their scant belongings, sat about in the thin shade of the pollarded trees.

On the rim of the basin in the plaza's center blackbirds chattered and drank and stretched in curiously alert attitudes for the drowsy flies that sometimes flew in range.

It was a kindly, idle, listless little town, in which no one seemed ever to be in a temper or in too much of a hurry to be courteous. Yet now and then, as in most of these little towns, the *patriotas* invade it and kill each other in the streets.

THROUGH THE BOTTOMS OF MEXICO'S GREATEST RIVER

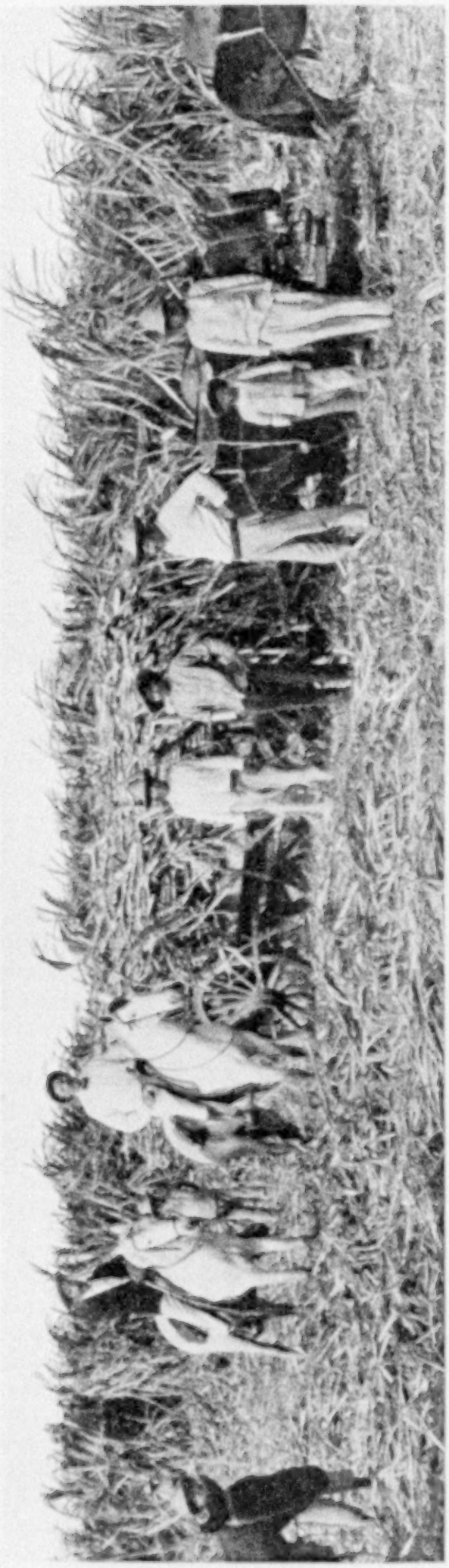
The compound fractures of our car became understandable. In our haste we said that this traverse through the Santiago River bottoms is the worst road in the world, but it is not. That distinction belongs to the mountain division of the Spanish Road; but this portion merits recognition.

During the rainy season the Santiago River spreads 25 miles wide through the flat, jungle-grown lower lands, and road upkeep is a useless burden.

We bounded over roots hidden in hub-deep ruts. When the car stuck in the dust the driver raced the engine until we bucked our way out. We swirled around sharp curves, a blind wall of green on either hand, at the top of the Ford's speed and stopped with a clash because a tree had just fallen.

On either hand were morasses of mud and slimy pools in which things crept. An ocelot loped easily into hiding. The dainty hoofs of deer marked the path.

One does not often hear of the Santiago River, and yet it is the longest in Mexico. Rising in the state of Morelos, it flows through Lake Chapala and on to the sea near San Blas. Cortez sailed it for some distance with his little barks. At intervals it roars through barrancas which are sometimes 2,000 feet below the level of the surrounding plain, and in which the Indian farmers find a super-tropic climate that forces vegetation as might an equatorial hothouse.



HARVESTING SUGAR-CANE ON MEXICO'S FERTILE WEST COAST

It runs through farming land that could feed two or three of our own States, if the farmers were only given a chance to farm and not compelled at the muzzles of rifles to drop the plow and be patriotas every little while.

INCREDIBLE FERTILITY OF THE SOIL UNDER THE TROPIC SUN

This land would grow any sort of a tropical crop if it were given a chance. One can in season ride through miles of wild limes and lemons rotting on the ground. The thought of cultivating oranges has never yet come to the peon. It has not even occurred to him to fight the black scale or whatever other enemy may attack the trees. The cocorito palm is responsible for a local soap-making monopoly, for its kernels are 65 per cent oil.

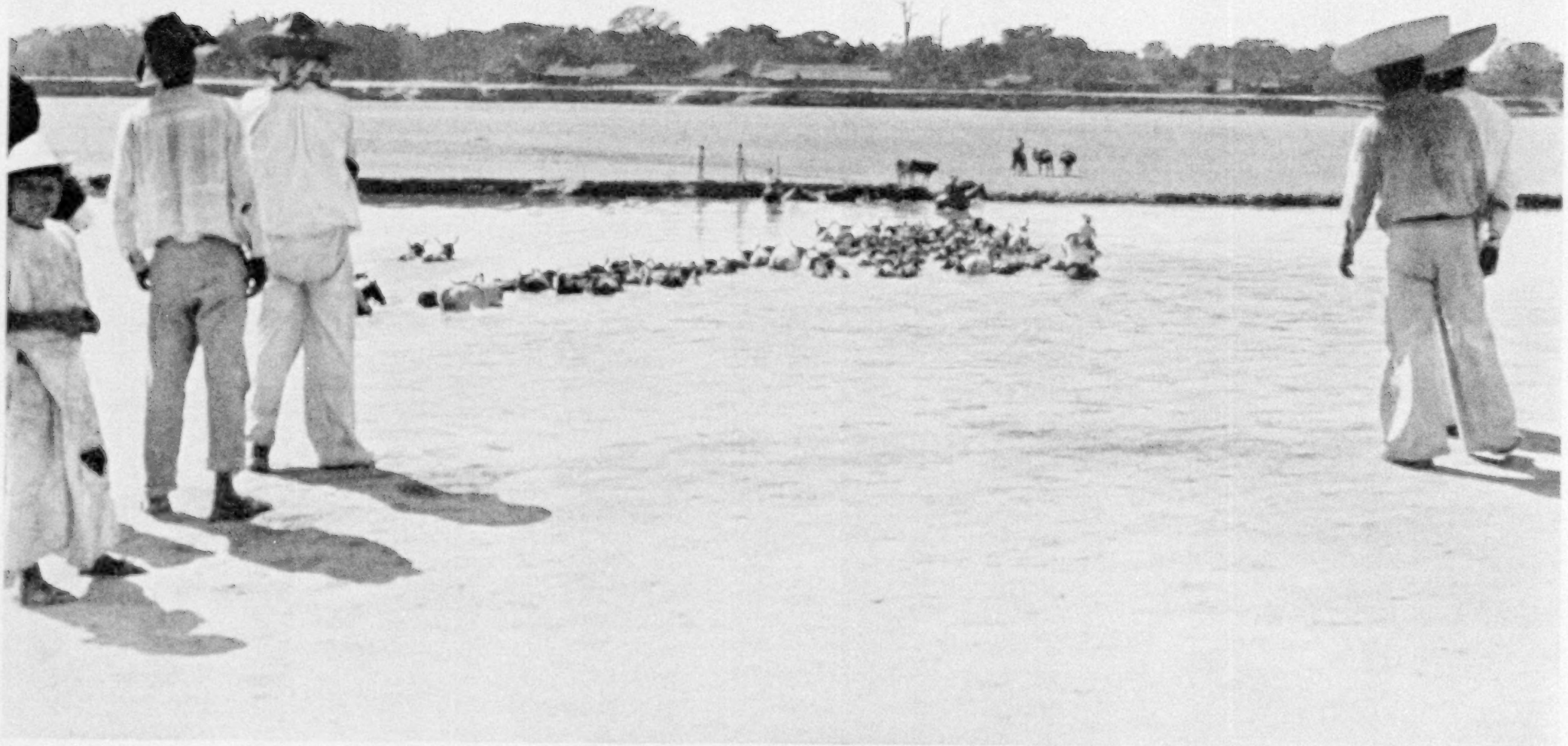
There are fields of sugar-cane and bananas flourish wherever planted. The best coffee in the world—at least as good coffee as there is in the world—comes from this district. Rice and tobacco and dates and figs grow almost without attention. In the barrancas the vanilla bean is found.

Sometimes by mistake we ran up blind trails into new banana clearings. Near the road a banana-thatched hut of poles. A swarm of mosquitoes. A man, naked to the waist, half a pair of pantaloons below, his body black and scarred. A woman in a mere wisp of torn wrapper shrinking from the strangers in the gloom of the hut. Sometimes naked children scuttling about with the pigs at the door.

In the wider bottoms of the river there were savannas—I love that pleasant old English term—in which green meadows were dotted with clumps of lofty trees. Here the river Indians lived, each family in its thatched hut, a dugout tethered against a sudden flood, the doorstep built two logs high to keep out marauding pigs, buzzards floating watchfully overhead. Each family had a roost in a tree in which to take refuge in freshet time.

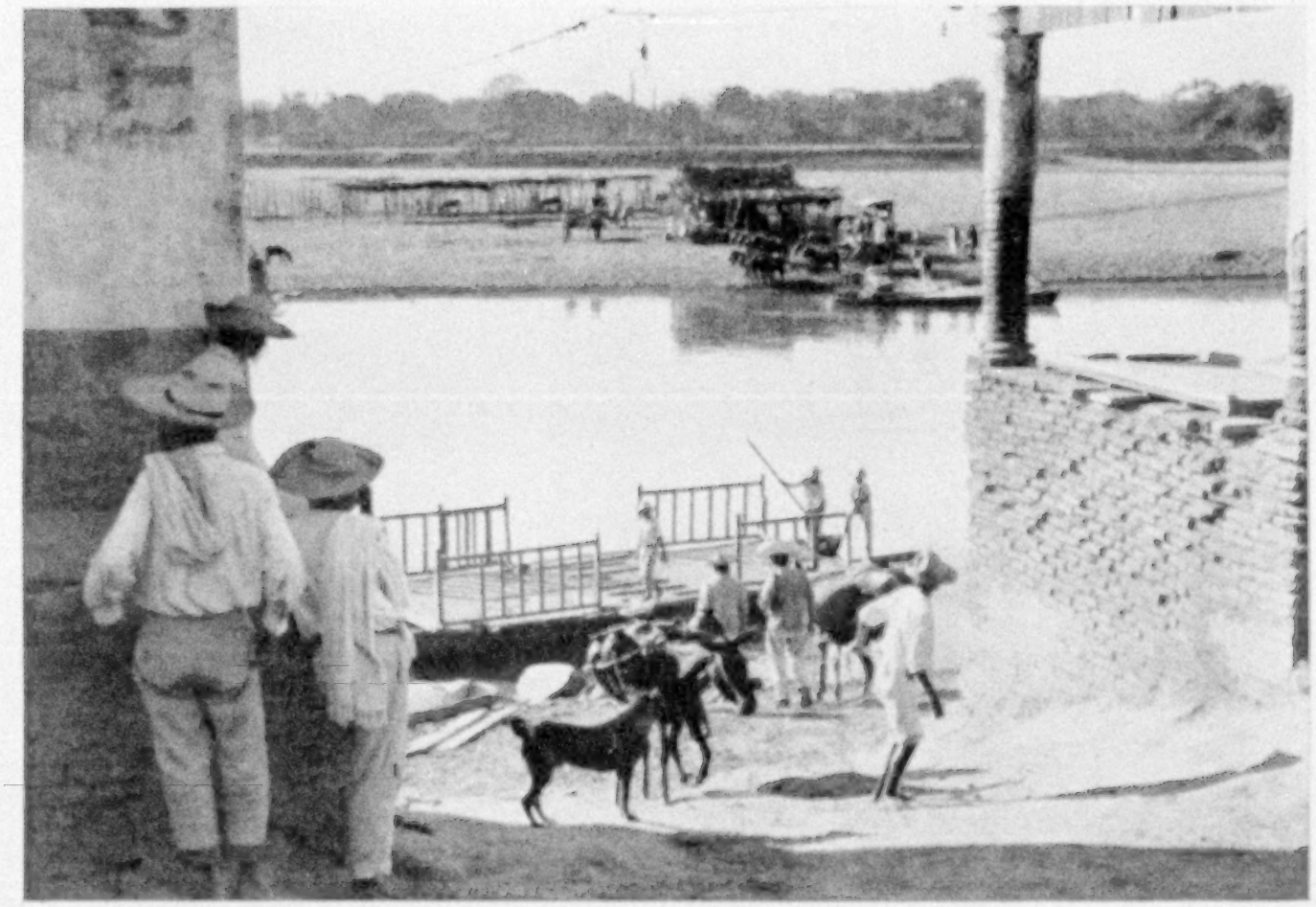
Darkness came on and the passage through the villages became perilous. Mexican cows seem to sleep by preference in the soft dust of the road, and our car had no lights. The driver did not slacken speed. Time after time I was conscious that the tip of a horn had

XUM



A HERD OF CATTLE CROSSING THE SHALLOW SANTIAGO RIVER

In the rainy season the Santiago spreads for 25 miles through the flat jungle-grown lowlands, but normally at the town of Santiago Ixcuintla it is a quiet, swiftly flowing stream 100 yards wide.



THE FERRY AT SANTIAGO IXCUINTLA

This privately owned public-service institution is busiest early in the morning, when the Indian farmers are taking their mule-teams to the fields, and late in the afternoon, when the day's work is done.

flashed past under my nose, as a cow rose leisurely by the side of the flivver. Sometimes we stopped in a storm of dust, the front wheels actually touching a recumbent beast. The driver said with a curse that he did not like to hit cows; they were so solid that it was always the automobile that broke.

Through open doors we caught glimpses of Indian families gathered, motionless—tableaux of half barbaric domesticity—around rude tables in their withe and wattle huts. Their lamps were made on the ancient pattern, out of jettisoned tin cans. Dripping wicks depending from the lips burned smokily clear in the still air.

SANTIAGO IXCUINTLA WAS OLD BEFORE SPANIARDS CAME

At last the river flashed under the light of the stars. We stumbled down a bank, deep in sand, into a dugout carved from an immense log. A hundred yards of paddling across the quiet, swiftly flowing stream and we clambered up stone stairs that might have been laid by Cortez himself.

We were now in Santiago Ixcuintla, old before the Spaniards came, and not so long ago the thriving county town of a prosperous agricultural district. It seemed dead as the catacombs. A peon or two slept on the platforms of the old stone wharf-houses through which a lively business once passed. A barefooted boy whined for pennies—"for the love of God." The single solid wheel of the baggage barrow made an almost unbearable racket on the cobbles of the deserted streets on our way to the hotel.

Here all was well again. I knew it the moment I saw the landlady. Of a blessed fatness, mark you, and with a kindly eye and two pretty daughters. Supper was hurried on the table with a bottle of French claret and some vintage butter canned in California—a brown and dismal creature—and huge loaves of bread. Yellow-hearted papayas, insipid mangoes, oranges, watermelons, half a dozen fruits, were heaped before us.

THE PEON TAKES GOOD CARE OF HIS WHITE MAIZE AND THE SEED IS CAREFULLY SELECTED AND STORED

The landlady sat down at the table, a long black cigarette hanging from one corner of her mouth, and alternated gossip with inquiry.

The bandittoes—had we heard, now, that the bandittoes had roasted the feet of another man upon The Road? God's curse on them! And that the patriotas were about to begin another revolution? Curse the patriotas! Could we not have peace? Two of her neighbors, kindly men, with pretty wives, had been made soldiers and killed. One thinks what one thinks, mind you. A pretty wife is a burden. Business was bad, but it might pick up again. No touristas ever came to Santiago. Commercial travelers now and then; but nowadays they are ill-tempered. One prefers not to see them. Poor men. One sorrows for them.

ALL WOMEN OF GUADALAJARA ARE PRETTY!

She piled our plates with all manner of tasty but unknown dishes. She spat between her teeth on the stone floor. Of the score of birds swinging overhead among the flowers in the open gallery, one gave out a torrent of clear, crystalline, brittle notes.

Of course, the floor was bare, for all hotel floors in Mexico are bare, but it was clean. The rough timbers of the tiled roof overhead were clean. The stone steps, worn into hollows by generations of travelers, were clean. The canvas cots, with a single sheet by way of bed clothing, were clean.

We forgave the House of the Black Spider, that hostel which had been in such *mal estancia*, in our gratitude.

I remarked to our hostess that her daughters were more than pretty. They were exquisite.

"How greatly they resemble Madame."

"But certainly," said Madame, aiming at a crack in the floor, "certainly they are pretty. We come from Guadalajara, where all women are beautiful."

It was a pitiful little town, Santiago Ixcuintla, if only because of the reminders of former prosperity on every side. To-day it is but a shadow of its former self. I could not buy a cigar in the town, which is an index of the commercial depth to which it has fallen.

AN INDIAN SMILE FROM A BATHER IN MEXICO'S LARGEST RIVER

In the palm-pillared market-place one finds only the barest necessities—beans, shelled corn, lime for the boiling of the corn, lumps of dirty brown sugar piled on wooden trays, odds and ends of wearing apparel.

The Indian women squat listlessly before the platters on which they display sweetmeats over which flies hover. The beggars intone prayers, as they turn their sightless eyes toward the sound of a hobnailed boot.

Yet it is a picturesque little town.

The old women, as they crawl into church or creep into the market-place, lean upon curious two-eared sticks, chin high.

MIXED BATHING IS CUSTOMARY IN THE SANTIAGO RIVER

Life is centered about the flowing river. Herds of cattle swim across it and horses splash through it bravely, and donkeys stand patiently while their masters clamber down the steep banks to fill the water-jars. Men and women bathe together in it, discarding their clothing as they reach the depths. Slender, rounded women, bare to the waist, wash their clothes in its crystal flow, their brown bodies smooth and shining as bronze.

Men too old to work sit in the sunlight on the banks, rarely speaking, watching the brown water slip by. Men young enough to work gather in the pulquerias that look out upon it and mutter together.

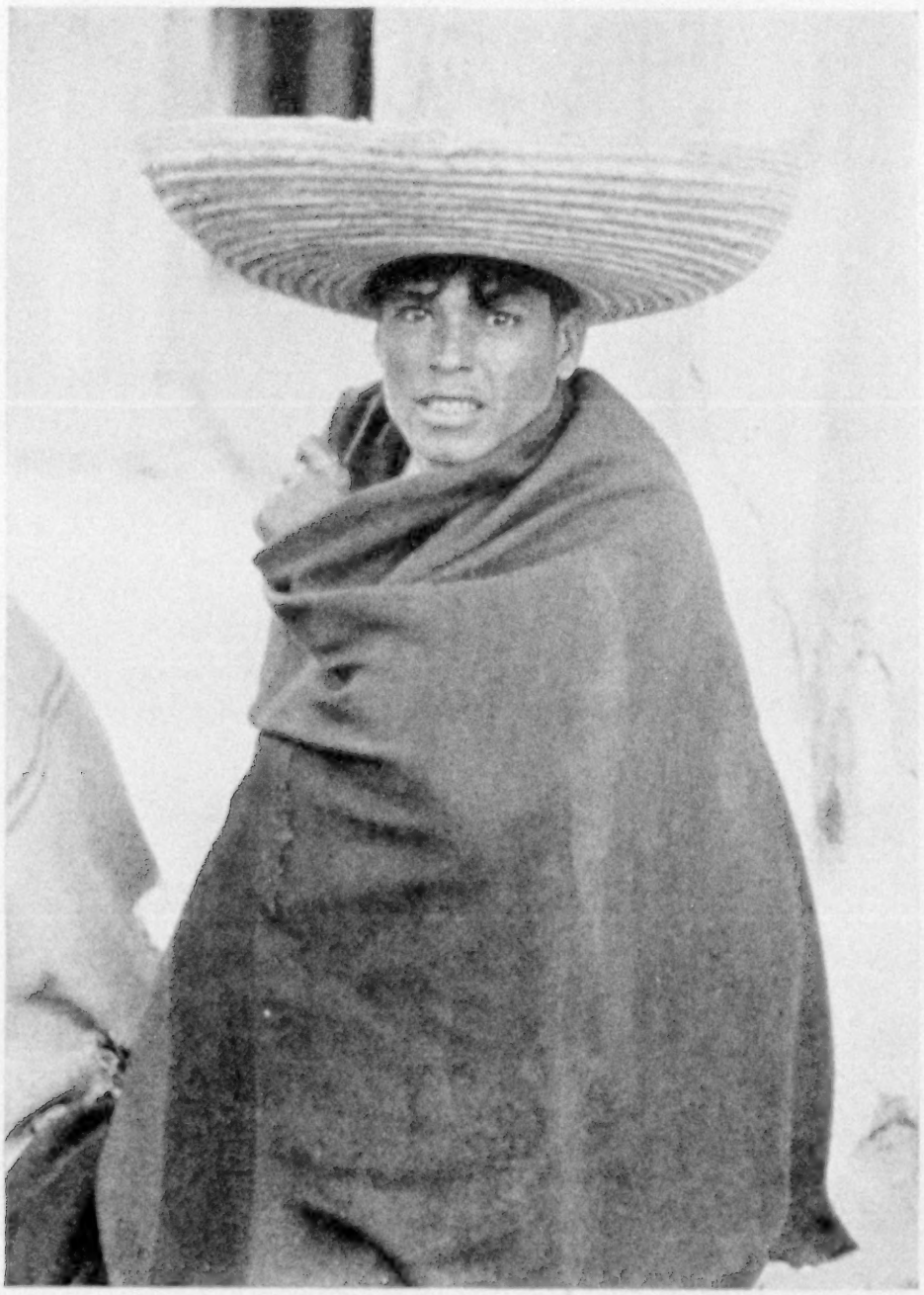
Pretty faces glance brightly from the iron-barred windows of the old houses that group upon the river bank—houses whose masters once were rich.

Our driver slept on the battered stairs the morning of the day on which we had elected to leave. One can use the possessive pronoun safely in Mexico. This man was not a driver or the driver, but *our* driver. While he was in our employ, he was as much our retainer as if he had been reared on our own ranch. The small mechanician slept by his side, hat well pulled down over his eyes, scanty blanket shrugged up about his ears.

EVERY DRIVER IN MEXICO MUST HAVE HIS MECHANICIAN

It seemed absurd, at first, that each driver of a Ford should insist upon carrying a mechanician; but each does in Mexico. The boy is convenient to talk with;

he runs errands; when the blowouts come he hands tools, and, above all else, he admires and is an audience.



"ADIOS, SEÑOR!"

In the chill of the mornings the peons wrap the *serapes* up around their eyes and squat in rows against the walls.

COUNTRYSIDE LAID WASTE BY SOLDIERS AND THIEVES

There were evidences of former prosperity on every hand. Not a thoroughgoing prosperity, such as is common to happier countries. Not one-fifth, perhaps one-tenth, of the available land is under cultivation. No one has paid attention to the roads during the decade of revolution, except that here and there the wallows have been filled in with the materials nearest at hand. Everywhere one sees deserted haciendas and abandoned farms.

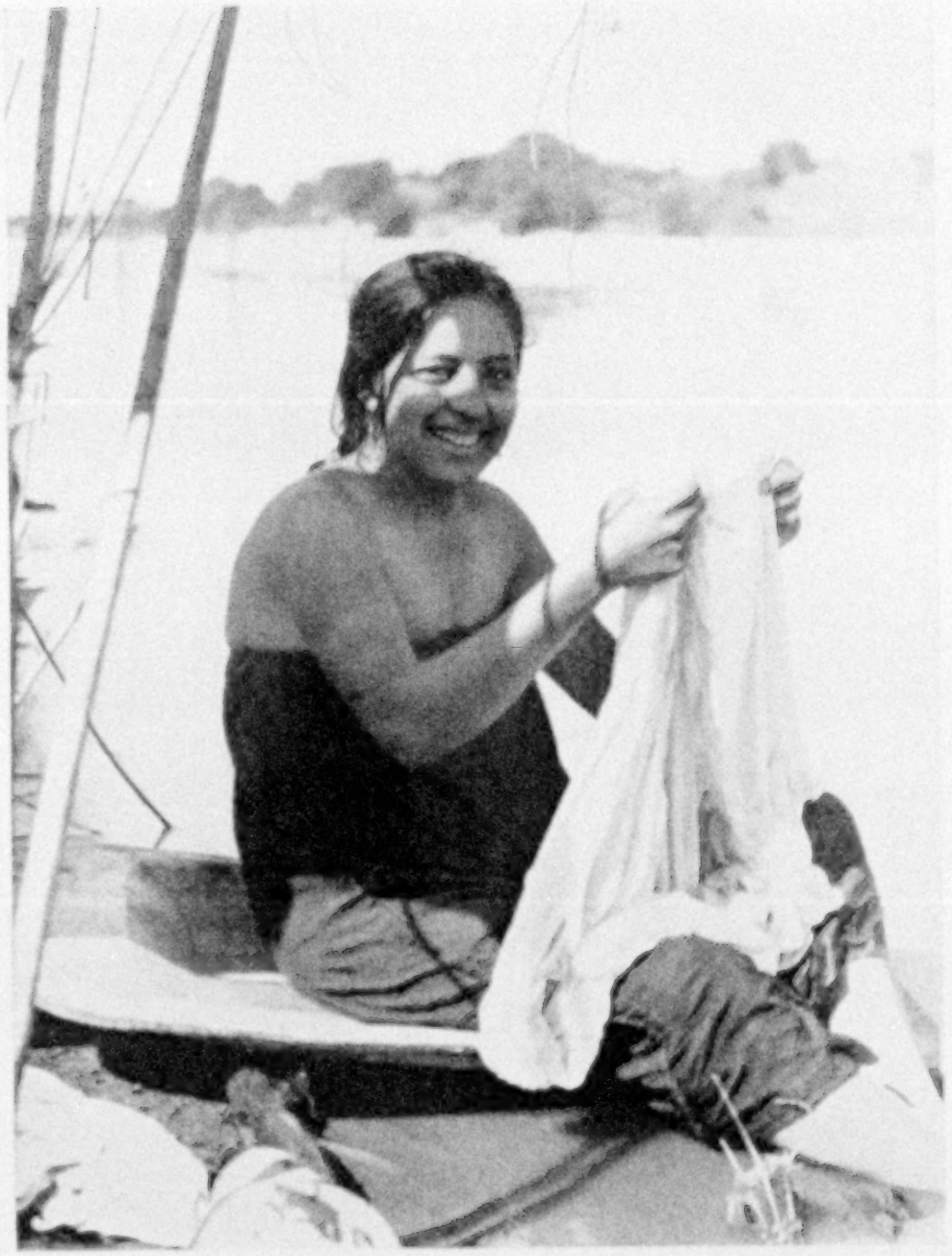
The contrast with the past is painful. Whatever may have been the demerits of the Spaniards, they built and built well. While they ruled, the country made progress. Diaz may have been a dictator and a tyrant, but under him there was order and prosperity. In its struggle toward a more complete freedom, Mexico has slipped a long way back toward chaos. Ten more such years would complete the ruin.

The Old Spanish Road is an incredible thoroughfare. Once upon a time, according to the people of the countryside, stage coaches ran all the way from Guadalajara to Nogales, in Arizona. Now only a flivver or a mule-cart can negotiate parts of it, and other parts are barely fit for traffic under saddle. It is well laid out, for the Toltecs, and after them the Aztecs, and after them the Spaniards, knew something of surveying.

Everywhere the views are superb of rolling hills and deep-seated valleys. There are patches of vivid green where farmers have held their own and kept the water flowing on the fertile land. Honeysuckle and bougainvillæa and roses and a score of unknown flowers wreathe the walls of black volcanic stone that mark the borders of the great ranches.

The dust was of a talcum lightness and a shoetop depth. Our forewheels threw up a bow wave like that of a fast launch in still water. Behind us rolled a pillar of dust to mingle with the other clouds that were stirred by the feet of peon and burro and horse and mule.

At Espino, near which is an Aztec



HER LAUNDRY TASK IS PERFORMED UNDER A BRUSHWOOD SHELTER ON THE BANKS OF THE SANTIAGO

monument unknown to the archeologists, but which the Indians say tells the story of the journey from the north when the Valley of Mexico was taken, we halted for the fourth time to cool the boiling radiator.

Up the road came a swirling dust-cloud. We could not see what it held in its heart until it was almost upon us. It was a trotting, squealing pig, driven by an angry little Indian.

RANCHING IN MEXICO IS SOMETHING LIKE WAR

Now and then we passed a ranch-house of the true Spanish type. They were built with fortifying walls of heavy adobe or stone around the great courtyards and with sun-resisting roofs of red tile. At the corners of the courtyards were watch-towers pierced with slits for rifle fire, and the great timbered doors which closed the arched gateways were made to resist battering.

That ranching in this part of Mexico was one form of warfare was evident. Some of the old ranches had been abandoned, and the gaps torn out of the stone walls and the blackened rafters told a sufficient story. Others had been turned over to the Indians under the new agrarian laws.

Near these ranches the Indians were inclined to be sullen. They did not speak to the strangers on the road, or if spoken to responded without a smile. The women rose from their doorsteps and went in when unknown men passed along the road, and the children stood silent to watch. But in the mountains, at a distance from rancho or town, they seemed as happy as children.

PACK-TRAINS EN ROUTE FOR THE DISTANT MOUNTAINS

Traffic began to thicken. During the first few hours of the road to Tepic there had been few travelers. Now and then an ox-team, doggedly lurching ahead on the hills or holding back on the down-grades in the awkward ox-fashion, pole thrusting high in air, heads up, bodies spread apart, eyes rolling.

There had always been burros pitapatting along with their air of concentrated and pessimistic thought. Sometimes an Indian woman with a basket on her head,

erect and rapid, or an Indian father with his hopeful astride his neck, holding on by papa's hair.

Now there came long trains of pack-mules, burdened for the back-country villages and the mountain mines. My respect for the mule, under saddle or in harness, is unbounded. By comparison the horse is a silly, flighty, flapperish sort. The mule climbs hills that would kill his showier rival, the horse; looks with steady head over swimming precipices; refuses to injure himself by too much or too fast work, and defends himself against insult.

These sedate animals stepped along lightly under their heavy packs, some straying to one side of the road to crop a tempting bit of herbage; others pausing to examine the landscape with wise shining eyes, old gossips marching in neighborly groups; others waiting quietly by the roadside for the *arriero* to come up and shift their packs back to place.

WAITING FOR HIS PARENTS IN THE TEPIC MARKET-PLACE

The *serape*, large hat, and type of *zapate* (shoes) are distinctive of the Indians in this region.

Indians appeared by the score, some balancing trays of wickerwork on their heads (see Color Plate VIII), while others wore flat hats of basketry in the rolled brims of which were small articles and fruits destined for the Tepic markets.

EXTRAORDINARY EIGHT-MULE CARTS ON THE TEPIC ROAD

Each countryside in Mexico differs in some matter from its neighbors. Whether in hat or sandal or saddle, each manages to strike a note of originality. The day's offering, as we neared Tepic, was the massive carts in which sugar from the city mills and soap made on the coast from the oil of the cocorito palm were hauled. Immense wheels, six to eight feet in diameter, between which a great cart body was suspended, to be piled high with goods.

In front of the body, swinging literally over the rumps of the wheel mules, the driver sat sidewise in a little hammock, his left foot on the stake of the wooden brake which bound the wheels so that they slithered and whined down the hills in a fountain of floury dust.

The teams were hitched in a new way, too, with two mules abreast on the wheel, two widely separated as a swing team, and four mules abreast in the lead. Some-

AN OUTDOOR BARBER-SHOP

As the needs of the customers are simple, the tools of the barber are few and easily carried in a box.

times more than eight were needed, and then other four-mule teams were harnessed on until the desired power was secured.

The 20th century has been a bit late in reaching this state of Nayarit, of which Tepic is the capital; but it seems convincingly here at last. The railroad has come, so that one may ride in Pullman cars direct from the northern border, if one prefers the rails to the Old Spanish Road.

Bolshevism has had its play in Nayarit. Mexico City intervened when a Bolshevist governor was elected, and ordered the seating of the Conservative candidate in his place. The state seems to be settling down after a spree, and to be convinced that hard work is the only safe road to prosperity. Governor Villanueva said:

"Nayarit has discovered that there is no profit in revolution."

UNTIL LATELY, NAYARIT WAS ALMOST A FEUDAL STATE

There is no richer state in raw materials in the world, perhaps, than Nayarit. No one knows how rich it is. In its

THE PATIO OF A SANTIAGO HOTEL, RESTFUL WITH GREEN THINGS AND SINGING BIRDS

"The floor was bare, but it was clean; the rough timbers of the tiled roof overhead were clean; the stone steps, worn into hollows by generations of travelers, were clean; the canvas cots, with a single sheet by way of bed clothing, were clean" (see text, page 235).

10,000 square miles the 170,000 inhabitants can raise any crop desired.

The farmer has but to vary the elevation to find the proper climate. Limes, lemons, oranges, wheat, corn, beans, bananas, palms, coconuts, cotton, tobacco—the list is endless. There are even two grapevines and one apple tree in Nayarit, which are eminently fruitful. No one seems to know why it has never occurred to any one to plant others.

Nor is irrigation needed, so well balanced is the rainy season in the greater part of the state. In the mountains there are proved mines by the score. One hears of little workings here and there, where two or three men are chipping away at a small vein and pulverizing the ore in an old-fashioned arrastra, in which mules drag heavy weights over a stone floor. Now and then the men come into town with a handful of gold bars.

The trouble in Nayarit for years was that the state was in the grip of the great landed interests. There are almost no small land holdings and few of the larger ranches were properly worked.

There is a proverb that a Mexican hacendado raises nothing on his land except mortgages. One great Spanish House and one great German House—the word house is used as more truly descriptive of these organizations than the modern terms of company or firm—dominated the situation. They had the only money to lend in Nayarit.

They controlled the market. They ruled the state as a feudal principality. When the Southern Pacific built its lines into Tepic, in 1922, its labor camps were searched twice a week by the majordomos of the great houses.

"This man is ours," the majordomos said. "And this man, and that. What

SORTING PALMS FOR AMERICAN STRAW HATS

In the mountain towns of Nayarit the leaves of a certain low palm tree are gathered and dried for shipment to northern hat factories.

can this man do? He is a carpenter? Very well; we will take him, too."

PEONS WERE RIPE FOR ANY SORT OF A REBELLION

The railroad could not fight back. Its best men were sometimes taken in spite of every effort to protect them. Men to whom the road was glad to pay three pesos a day were returned to the houses for a wage of less than a peso. The men dared not resist. The whip has been used not so long ago on recalcitrant peons in Nayarit. The houses had their own way of bringing pressure on the courts.

The houses have their justification, of course.

"If we do not compel these Indians to work," they say, "they will not. Then no lands are tilled and no mines worked. Therefore we have made them obey."

Until they saw that they could no longer resist the pressure of modernity, the houses fought the coming of the railroad. Competition from outside was unwelcome to them. The nearer one got to the railroad, before it reached Tepic, the less one paid for the sugar made at Tepic and freighted out by mule.

Every one has paid more or less direct tribute to them. During my visit I saw evidence that it has been, let us say, difficult for a resident of Tepic to import goods without paying a tariff to one of the houses, though that house may never have seen or heard of the shipment except through the payment of the tax.

One understands that a ground fertile for the growth of any unhealthy ism had been prepared. Even after the revolution came and peons were presumably free, they were held in bondage. They were compelled to pay a tribute to the houses—in eggs, or chickens, or work.

It is true—one does not hear this from the peon—that they were always fed, even when free men went hungry, and that there were always roofs over their heads, and far better roofs than their free friends owned. But they turned rebel against their masters when they had the chance.

Some of the land was distributed among the peons and many songs of liberty were sung.

A SEÑORA MAKING PURCHASES IN THE INDIAN MARKET IN THE PLAZA AT TEPIC

Tepic is the capital of the Mexican state of Nayarit—10,000 square miles of incredible fertility and a wealth of mineral resources. The farmer has but to vary his elevation to find the right climate for practically any crop desired.

When the Bolshevists were in control they played precisely the same sort of hob with the financial system that most of the other leaders have played since Diaz fell. It seemed so easy to get money merely by printing it. It was a popular tenet that white folks and bankers were alike enemies of Mexico.

Between the revolutionistas and the banditoes and a few neighbors, almost all the live stock in the state was killed or stolen.

The patient people lived on what they could raise in their fields and on what they could trade trinkets for. One could buy superb old gold and silver ornaments, magnificently worked by the artists of two centuries ago, for the price of the metal in a ragged paper currency. They attempted little else. What was the use of raising food for some one else to steal? That is still a living question in Mexico. The banks closed their doors.

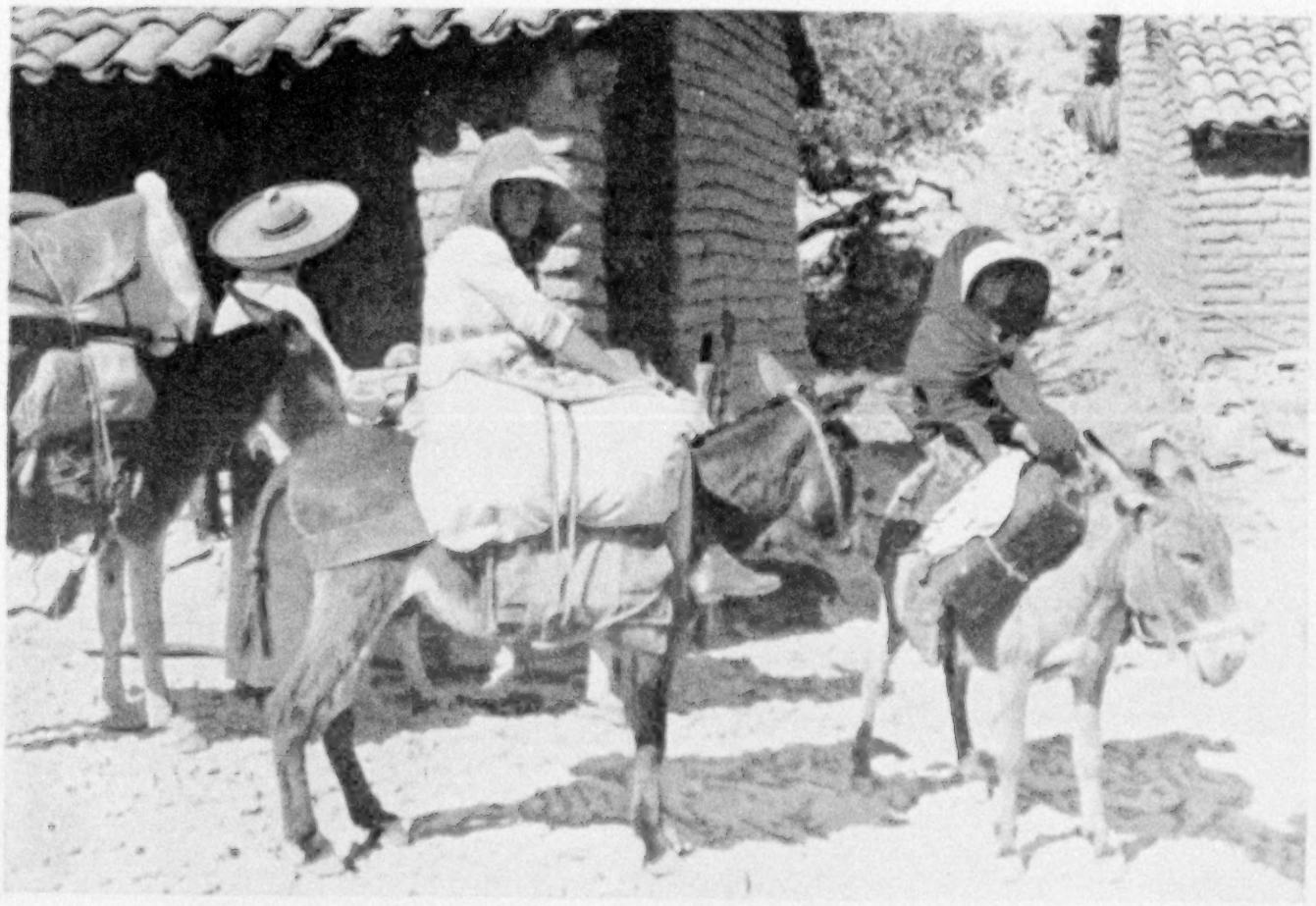
For months Tepic and Nayarit lived by a system of barter. Property values went down almost to nothing. The taxes were due and payable just as if the owners had been prosperous.

When the owners could not pay, the state offered the properties for sale. Under the Mexican law such sales can only be effected for spot gold. Checks, drafts, paper money, evidences of indebtedness, are not considered. There being almost no cash in the country, the properties did not sell. Then they were offered at successive reductions, until the prices became absurd. These set the values for all the rest.

DURING ISOLATION TEPIC REVERTED TO CASTILIAN TYPE

The hotel in which I lived had been built by General Juan Ponce de Leon, who almost ruined himself in the building. It had 75 feet frontage, within a stone's throw of the plaza which is the heart of the town, and is constructed throughout of cut-stone, as massively as a fort.

The ceilings of the two floors are 15 feet high and all the wood is of Mexican



MEXICAN WOMEN TRAVEL COMFORTABLY IN LITTLE CHAIR SADDLES

cedar, which is the only wood that will resist the Tepic ant. There are great silver handles on the swinging halves of the front door, through which a coach and four might be driven. The single bathtub is almost a pool.

One looks out between pillars of stone into an orange-filled patio. The house is in perfect condition, for nothing but dynamite could injure such a structure. It was bought for $4,000 American. A near-by estate, valued at 1,000,000 pesos, was offered for a tax bill of 28,000 pesos without result. No one had the money. Half the houses in town were for sale at equivalent prices. One could not buy the cut-stone at the same cost.

During this period of almost complete isolation the town reverted to its original Spanish type. The etiquette among the better people is Castilian in its formality. A lady may be accompanied on the street by her husband, father, or brother, but by no other man. No man may speak to her, except by a distant and ceremonious lifting of the hat, unless her husband is with her.

The ladies of the town only appear on the plaza on evenings of fiesta, and then only for a formal parade around the quadrangle, while the peons keep their distance and the excellent band plays. Then they go home, and innocent revelry reigns until 10 o'clock, except on very special occasions.

A RICH TOWN THAT WAS UTTERLY WITHOUT AMUSEMENTS

There were no amusements in Tepic, as we understand the term. There was but one moving-picture house in the city of 15,000 people, and although the film was a lurid one when I visited it, there were not more than 25 people in the house. The few who were able to read translated the titles to the others; so that the effect was that of a show in which the speaking parts were played by the audience.

The better people do not go to public affairs—there have been no public affairs except political meetings—except on the rare occasions when there is a good concert. Then they turn out in a body, for the ladies of Tepic are truly musical. They entertain each other at "At Homes," when it is the custom of the hostesses and the guests to play only classical music,

WHERE THE FAMILY WASH INCLUDES A MEMBER OF THE HOUSEHOLD

Indian women not only take clothes to the river to be laundered, but their children also. The baby doesn't seem to be enjoying such a strenuous bath.

and, as I am informed by an authority, to play well and with genuine feeling.

They do not cook or keep house, for that is beneath the dignity of a lady reared under the rule of Spanish etiquette. The servants do what is done. When the ladies walk abroad, each is accompanied by her servant, just as the men are followed by their *mozos*. Race suicide is unknown in Tepic.

It was small consolation to the outlander who spent two days in trying to get cash for a perfectly good draft on an American bank, without which he must have spent his life in Tepic, to learn that maid-servants are paid but two pesos a week, or fifty cents, American; that a mozo gets a peso a day and boards himself, and that the clever girls in the chocolate factory are happy on a wage of half a peso a day.

Ultimately an accommodating debtor or two paid up and a transfer of obligations was arranged, clearing-house fashion, and I took the balance of my dues in silver and displayed a painful lumpiness when I walked abroad.

Romanticists complain that with the coming of the railroad Tepic will be spoiled. Personally, I like my cities somewhat spoiled. I am more used to them that way.

INDIAN MARKETS ARE ALWAYS WORTH VISITING

Never was there such a road as that to Ixtlan, Nayarit. At least there never was such a road over which cars were driven. For sheer color and movement and delight, it would make the best product of a Los Angeles studio seem as commonplace as Houston Street to one who sells old clothes on Baxter.

NOTE.—There was also dust—dust in thick, gummy, greasy clouds—and ruts that jolted the very soul out of one, and sun rays that burned down in white flame. Overhead there was the clear, fathomless, brilliant azure of the Mexican sky, in which little woolly clouds floated, and alongside was the tinkle of running water in the irrigation ditches, and now and then the boughs of great trees arched overhead.

WHEN THE PULQUE MAN COMES AROUND

He's as popular with Young Mexico as is the hokey-pokey vender in the United States.

Yet it was the human element that caught and held one's fancy. It seemed such a very little time ago that Cortez and Fra Junipero and Alvarado the Damned trod this bed of staring yellow sand.

We delayed our departure because it was the Indian market day, and there is always some new thing at an Indian market.

We patrolled the long lines of women crouched by their cooking pots, a wisp of blue smoke curling over them, by the side of each a wicker stool for the customer. We watched the men with wildcats and badgers for sale, and the riders with rusty spurs strapped on their bare heels, and the wandering boy soldiers, fresh caught in the hills, regarding this metropolitan scene with wide eyes.

Alert policemen, swords at side, stalked about in pairs.

We tasted the great hunks of white, bitter, salty cheese, and sniffed at the beeswax, and burrowed through the hardware booths, in which were intricate keys weighing a pound or more and surely dating from colonial times.

But the Indian at the flivver wheel

grew impatient. The road to Ixtlan, he said, was long and rough. As an afterthought he also alleged banditoes who were particularly active after dark.

MURDER CROSSES EVERYWHERE DOT THE LONG ROAD

Along The Road, every few feet it seemed, were the crosses Mexicans erect where men have been killed. Usually the crosses were but little sticks, rudely tied together, that could not outlast more than a year or so in any climate. Yet there was an abundance of them.

In one deep, narrow cut there were ten crosses newly scratched in the rock of the wall. From the sparkling white of the new graving, they might have been made within the week. Evidently there had been an ambush in this narrow way.

Once, too, there was an Indian merrymaking. A score or more of peons, in their ceremonial clothing of spotless white, the width of their pyramidal pantaloons being so phenomenal that they seemed to taper up to their huge hats, leaned against a rock wall. Inside an adobe hut a jerky accordion was whining.

"Hola, señores," cried one.

He leaped down the stepping-stones that told that the roadway is at times a flood, waving a bottle of tequile. He was evidently something more than half drunk. We explained that we had a long road ahead and had no time to drink, but that we wished him well. He fell back with the grace that is inborn in these people and lifted his mountainous hat and bade us go with God.

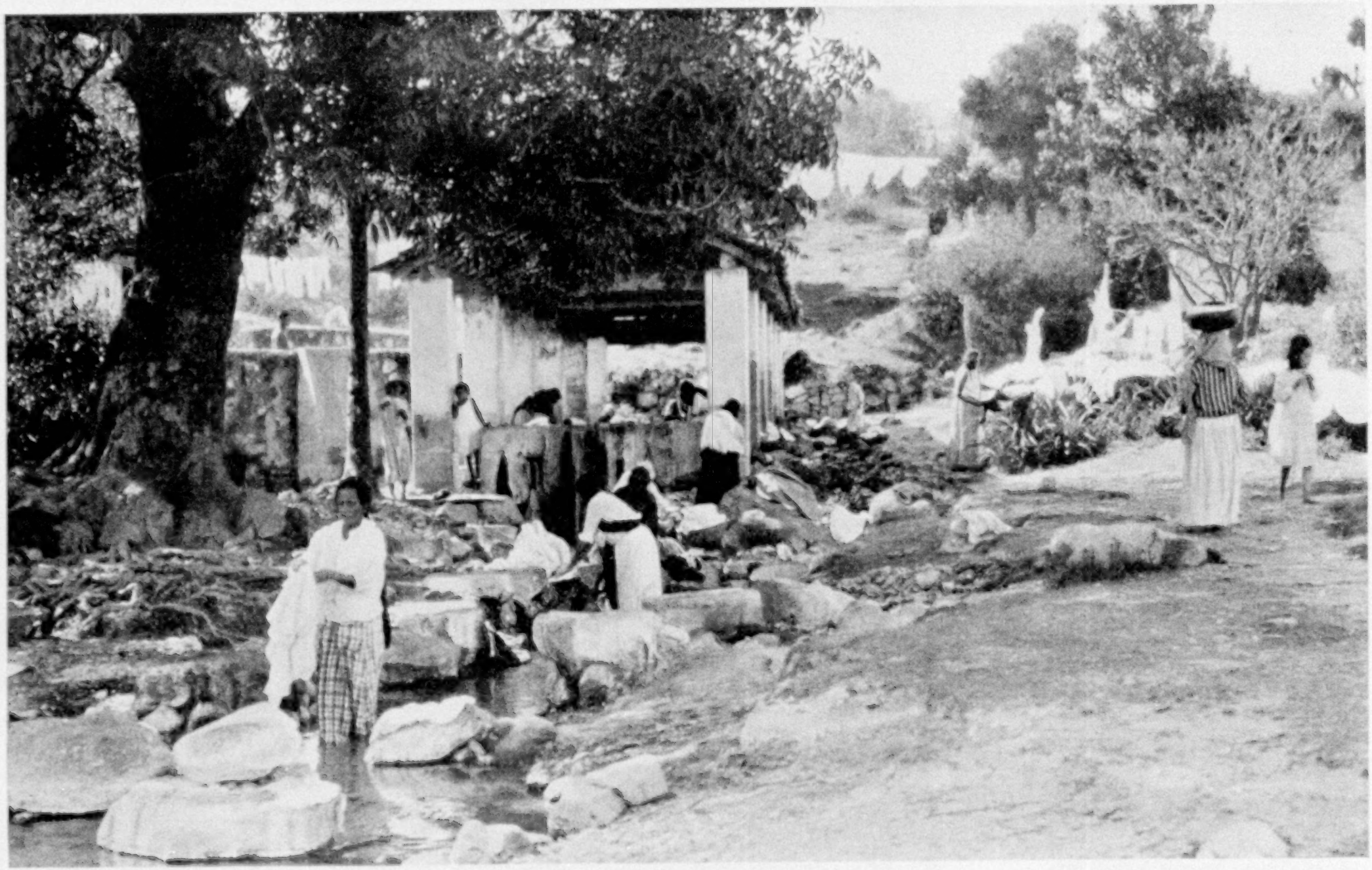
GATHERING THE JUICE FOR MEXICO'S NATIONAL BEVERAGE

The boy sucks the maguey sap into the bowl of a gourd. Sealing the hole at the top of the gourd with his finger, he carries the *agua miel* (honey water) to be emptied into a goatskin bag, which is taken to the fermenting shed, where it is converted into pulque.

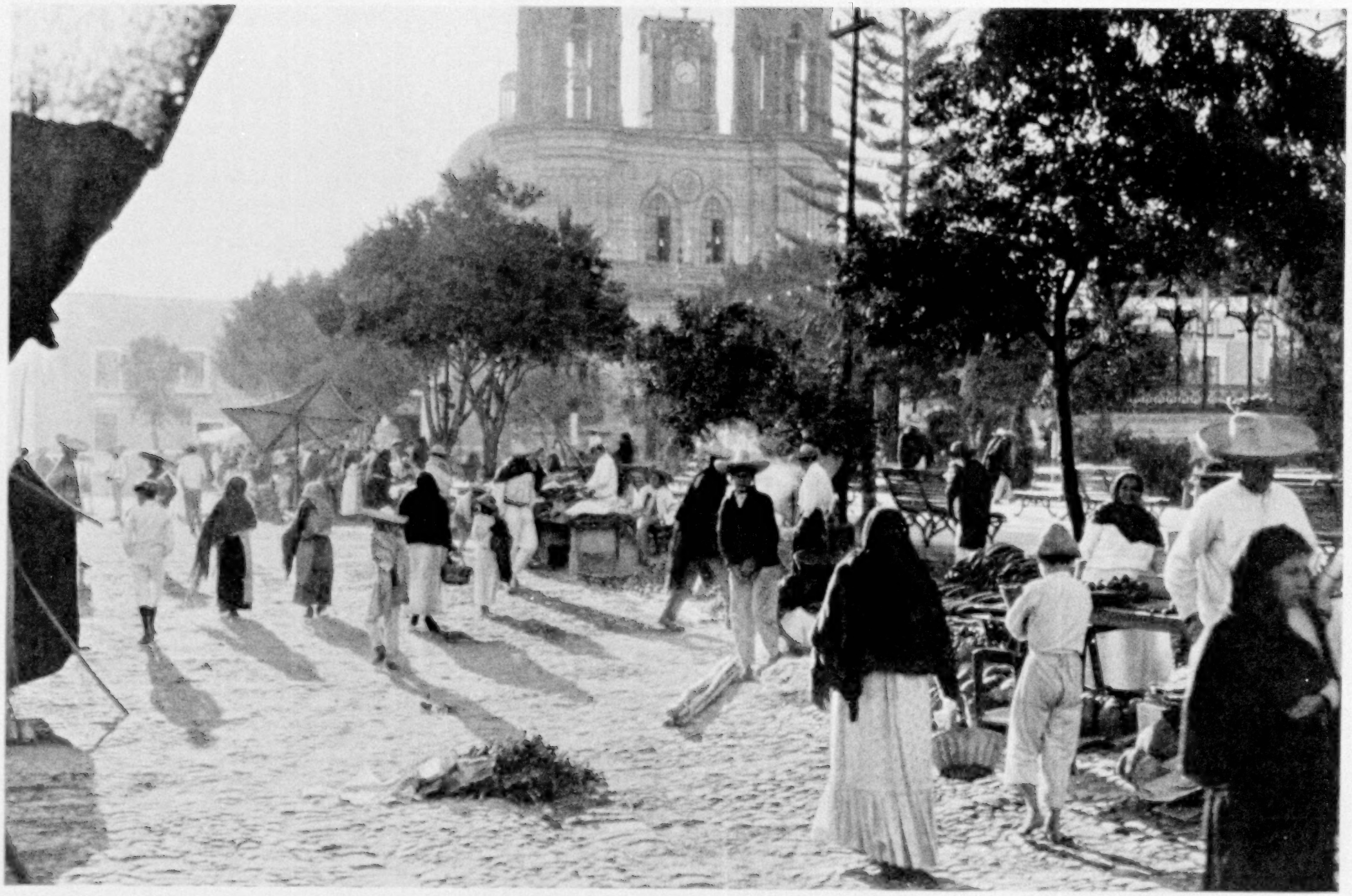
We drove on, vainly wishing that fate had provided the Anglo-Saxon with a manner.

TRAVELERS SHARE THE MESONES WITH THEIR MULES

We rattled through small towns. Always the local bands played in the little plazas, and the small boys ran and yelled in the dusk, and the girls walked, arms about each other's waists, while their would-be lovers eyed them from the street corners. Sometimes we caught glimpses through open doors down what seemed tunnels of darkness into dimly lighted patios of oranges and flowers.



A SPRING IN THE OUTSKIRTS OF TEPIC USED AS A MUNICIPAL LAUNDRY-TUB BY INDIAN WOMEN



SUNDAY MORNING INDIAN MARKET IN THE PLAZA AT TEPIC

The market consists of long lines of women crouching by their cooking-pots, with wicker stools near by for the customers (see text, page 246).

HEAVILY LOADED CARTS OF CANE BOUND FOR THE SUGAR MILL NEAR TEPIC

At Ixtlan we took our turn in a *mesón*. Once these mesones were the great caravansaries of the road, in their way comparable to the coaching inns of old England. In those days they were filled at night with shouting companies of muleteers and traders and soldiers. Now they are dark and lonely.

In the Ixtlan mesón the guest-rooms were but one story high and were built around the patio, in which the mules stamped and brayed and munched their hay.

I went out to look at the animal I was to ride next day and found the arrieros, the dynamic forces of the mules, sleeping on the cobbles wrapped in their blankets. Arrieros care less for personal comfort than any men I have ever known. Give one a chance to occupy the bridal suite and he would swaddle himself in a horse-blanket under a cactus.

The air was heavy with the odors of perspiration and leather and mules.

"Bring forth the horse," said I to Tomaso.

So they brought it forth, and I looked at its legs. One always does, though I do not know what one would do if one happened not to like them.

Tomaso said that the horse was small, but of a surety a perfect specimen. It occurred to me that if the horse took up the running walk that Mexican horses favor on the trail I would look a good deal like a highboy being propelled about on casters, but I said nothing.

"I will awaken you at 4 o'clock," said the muleteer.

It seemed improbable, for it was then midnight and crisply cold, and one is always warned that the word of no arriero can be depended on. But he did.

The morning was black and starless. Right at our bedroom doors two handsome, nervous little mules were stamping, their neat hoofs clashing on the cobbles. A candle flickered. A mozo yawned dismally as he brought out the baggage.

A small Mexican boy appeared with his mother and started his men packing his mules. Then he returned to kiss the hand of the grisly landlady. I shall always have a higher opinion of Mexican boys after having watched him. An American youngster would have died of shame if he had been compelled to kiss

any one's hand, and especially the not over-clean palm of the landlady of a combination livery stable and hotel.

This small boy came as near being a thoroughbred little gentleman plus a capable little man of business as I have ever seen.

"Adios, charming señora," he said, bowing and lifting his sombrero. Then, with a snap, "Juan, Felix, Carlos!"

The candle flared up and expired. There were no other candles. Our electric torches were never at hand when needed. To those who have never heard two fidgety mules being packed in darkness with articles of varying dimensions and weights I say in all sincerity—don't.

Yet the arriero did not kick any mule, or beat it over the head, or clout it with a club. He called them the most horrifying names in tones of canary sweetness.

One began to understand the relation that exists between a good driver and a good mule. The mule is driven hard and packed heavily and fed just—barely—enough, but he is never teased and rarely abused. Nor have I ever seen a Mexican mule kick at his packer. This statement seems absurd, I know, but it stands. They seem as gentle as ringdoves.

IN MEXICO THE MULETEER RUNS BEHIND HIS CHARGE

"About that little breakfast, now", I said to Tomaso. "You have not forgotten it?"

The muleteer said vaguely that we would, no doubt, eat somewhere along the road. So we started, at half-past 4 o'clock of a frosty morning. The muleteer was dressed in a high, wide sombrero and white cotton shirt and trousers and open-toed sandals.

As soon as we got into the street, having headed off several determined rushes by the mules back into the mesón, he strapped a pair of huge spurs on my feet, giving me somewhat the appearance of an old-fashioned Missouri River side-wheeler, and hit my little horse violently on the tail, and we were off.

The muleteer ran behind. Whenever he got near enough, he snapped my little horse on the rump with his quirt. I objected to this, because each time the little horse leaped about 14 feet; but my objections were overruled.

DRESSED IN HIS BEST AND CARRYING A MACHETE JUST LIKE FATHER'S

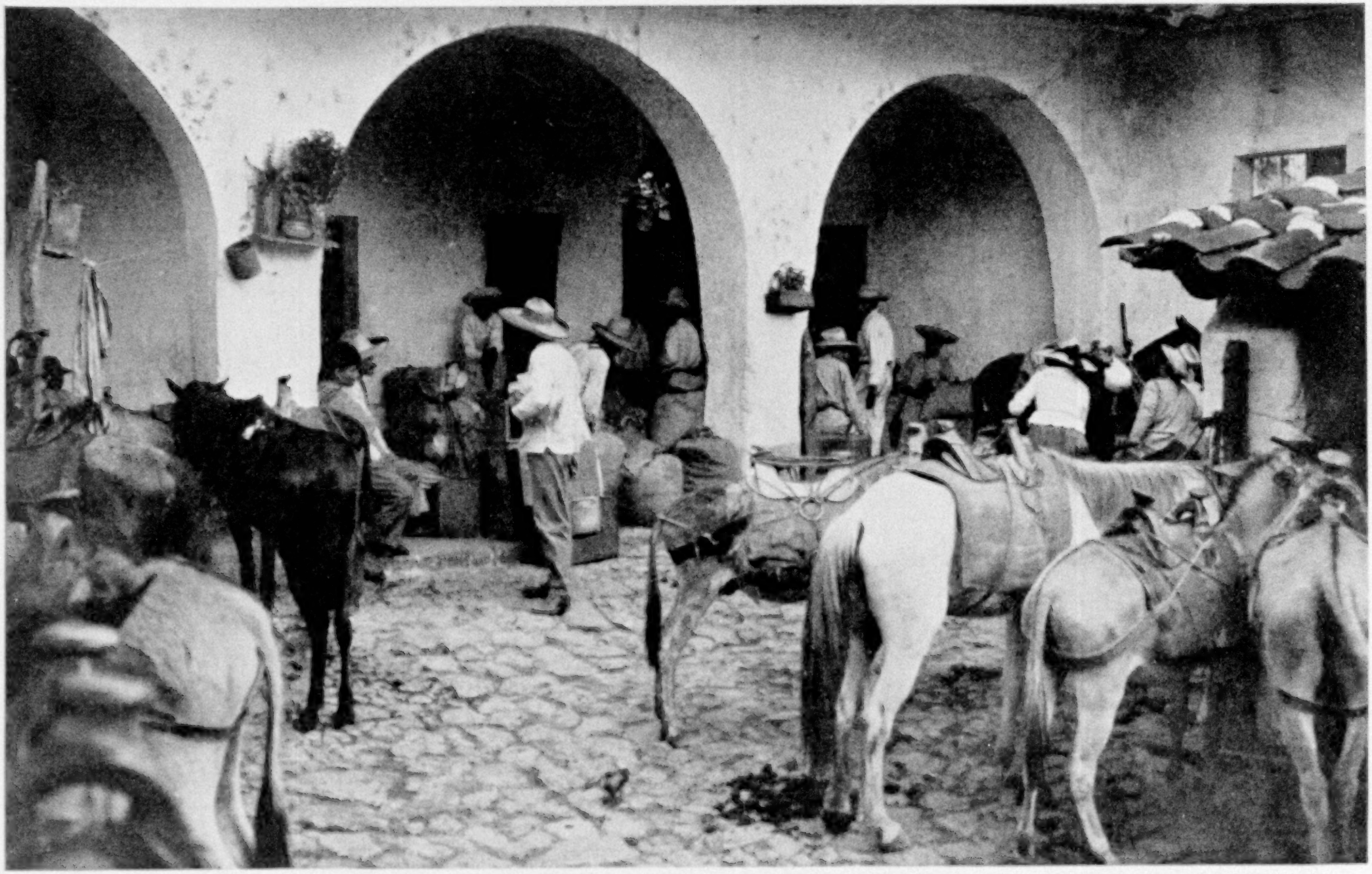
"Adelante!" said the muleteer.

We trotted savagely up the hill road. Now and then Tomaso hit my little horse on the tail. Doubtless there was scenery on either side, but my memory failed to register it. We passed other trotting mule trains, and sometimes other mule trains outtrotted us. Every one seemed to be in the most desperate hurry.

The dawn came in azure and rose and gold. The trunk with which one mule was packed slipped from time to time, and I took occasion of the pauses to work my way further from that flicking quirt.

We came to a town of small adobe houses built flush with the great rock-filled Spanish Road.

"We eat here," said Tomaso.



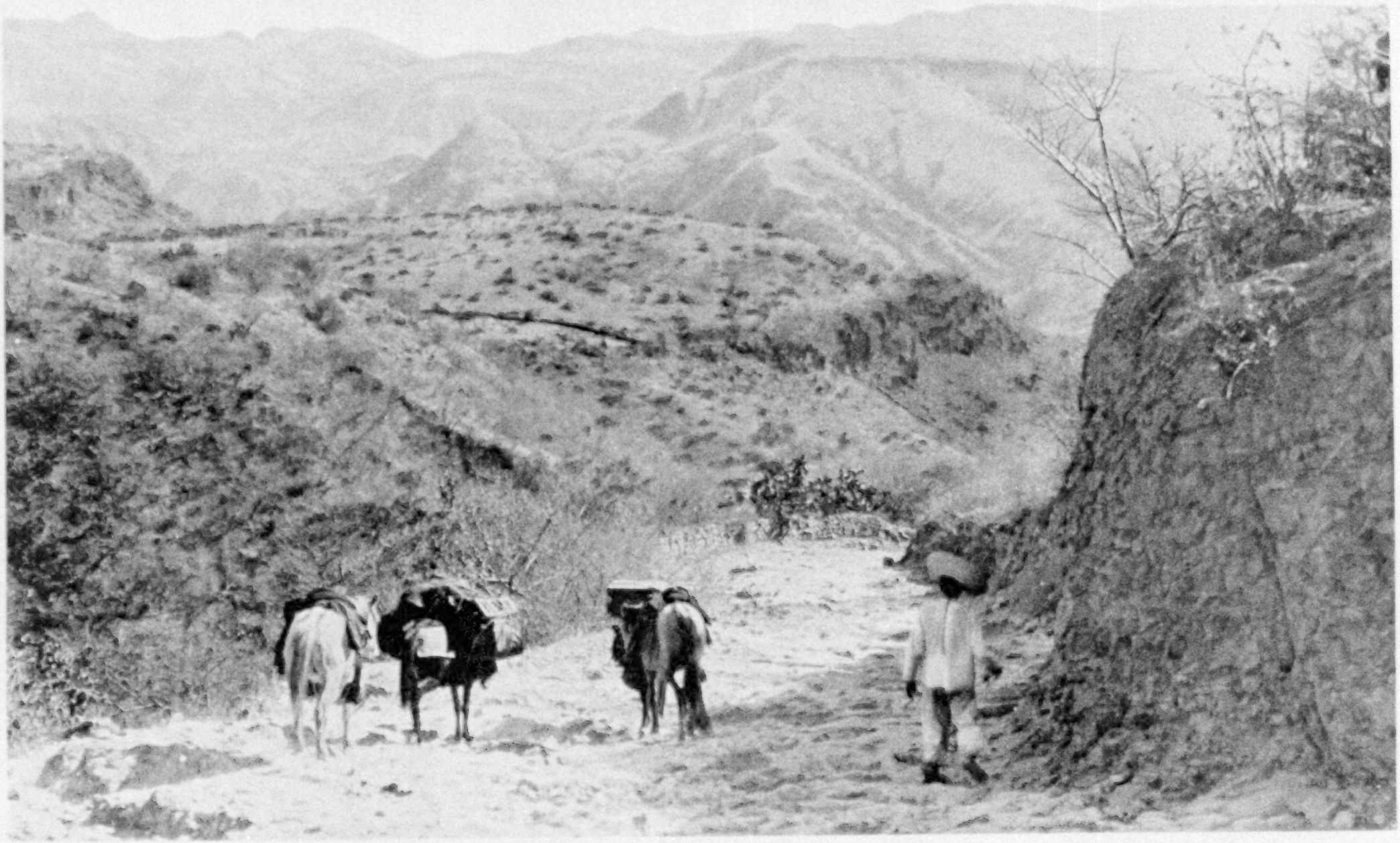
INTERIOR OF A MEXICAN MESÓN

Once the *mesones* were the great caravansaries of the road, comparable to the coaching inns of Old England. The guest-rooms are built around the patio in which the mules and saddle horses are stabled at night.

XUM

THE GOING IS ROUGH AND ROCKY ON THE OLD CORTEZ ROAD FROM IXTLAN TO LA QUEMADA

At Ixtlan the automobile was left behind, and this section of the Old Spanish Road, which has a bad reputation for bandits, was covered on horseback



A PART OF THE OLD ROAD USED BY CORTEZ ACROSS THE SIERRA MADRE

This was at one time a post road with a line of diligences, but in its present condition it is difficult to imagine that wheeled vehicles ever passed over it. As many mules were hitched, four abreast, as were needed to drag the coach through or over the road. Alongside the driver a peon at night held a flaming torch of pitchpine.

It was light enough to see things and people. Chickens, pigs, dogs, cats, and babies walked in and out of the open doors. Smoke curled out of the doorways and over the flat, chimneyless roofs. In front of each hut was a little elevated platform of mud and stone on which the residents sat to watch their world go by.

A BAD TRAIL FOR GOOD MULES IN A FOG

The Indian woman who had been picked as our hostess said she had no food. The hens had not yet laid. A hasty census revealed that no one had any food, and so we waved our hands and were unmannerly, and in return were given coffee. It was, perhaps, the worst coffee in the world, thick with the dirty brown sugar of the market-places. We also were given delicious little loaves of brown, crusted, fluffy, sweetened bread.

"Adelante!" said Tomaso.

We adelanted for aching hours. We came to the bad place in the trail of which we had been told. Evidently those who told knew nothing about it, for it was not at all bad. One could have driven a wagon over it, except that to get there a wagon must have been dropped out of a dirigible.

Over the unguarded edge one could easily see the bottom of the ravine when the gray mists swirled away; but it seemed a long time before the sound of a thrown rock came up, muffled by the fog. The worst of it was that the road had given up trying to be a road and was putting on a jazzy imitation of a disorderly stone quarry. No wheeled vehicle has ever been over it, I am sure.

Yet one does not know what the incredible Spaniards may have done with their ox-carts, of which the wheels were of solid ebony. There are carts in operation to-day that are known to be more than 300 years old. The wheelwrights built to last in those days. The pavement was of rocks the size of one's head. Sometimes they had been washed out and the gully had never been filled.

One progressed uphill by a series of surges and dropped downhill in dislocating, neck-snapping bounds. Adams became voluble and injured. He said that his horse was a demon and that his knees were killing him. He paused to confide this to me, and Tomaso snapped at his horse with his quirt.

"Adelante!"

"I won't," yelled Adams. "I will not ride another foot."

He got off and walked. The arriero relapsed into an embittered silence. I gathered that by this act of Adams he had lost a chance to break the world's worst road record with amateurs; also he lost face with his friends. Sometimes he would catch up with Adams and expostulate, but Adams waved him away. He said that he could hike with any man, but that he had been so carefully reared that he did not know how to tell the world about the pain in his knees.

Mule trains passed on the clattering trot, and the drivers said funny things to our driver, which were not appreciated. The riders all wore rifles or revolvers where they could be gotten at easily. This stretch of road had a vile reputation not so long ago.

"Where do we eat lunch?" I asked.

"La Venta," said Tomaso.

From his tone, La Venta seemed to be a Flamingo or a Biltmore. I began to plan a menu. We kept on trotting angrily over this road, which no sane American would have even led a good horse over.

BULLET-MARKS ON THE WALLS OF AN OLD RANCH-HOUSE

We trotted through a village, catching glimpses of pleasant porticoes under which we might have rested had Tomaso been propitious. An old woman was revolving a spindle and her aide, 20 feet away, was holding the end of a hair riata.

Cooking fires were smoking in the streets, by the side of buildings, near the stream, under rocks on the hillsides. Men stood in the doorway of the village inn with glasses of cool beer in their hands. We kept on adelanting ruthlessly.

At 2 o'clock we came to an Indian shack by the side of a hacienda which had been burned by the bandits. It had been an imposing place. There had been a good-sized restaurant and a store and the offices of the ranch. Inside the great patio were rooms in which the ranch servants and the travelers of the past had slept. The stones of the quadrangle had been blackened by their little fires. There were watchtowers on the walls.

XUM

A SWEETMEAT MAN IN GUADALAJARA

The whole was set in a frame of gray hills, down which tracings of green told of little trickling streams. Under the arched portico which had protected the restaurant's patrons from the sun, five black crosses had been rudely drawn with charcoal. There was a huddle of bullet-marks on the soft plaster.

KINDLY INDIANS DID THEIR BEST

A few mules were at fodder near the shack. The arrieros were sleeping in the shadow of a wall. Half a dozen pigs shared the shade with them. In a little shelter near by—just a thatch of grass thrown over sticks—an Indian family had set up housekeeping.

Smoke seeped out through the thatch of the other shack. A naked baby was being awakened from where it slept, with its head on a sow, and was being forced into a shirt. Two or three women peered at us from the shadow of the door.

"Let us eat here," I said.

"What — here?" asked the arriero. He seemed horrified. Then I asked the name of the place, and he said it was La Venta and very villainous.

The Indians, bless their kind hearts, gave us of their best. The nests were searched and we had eggs and, of course, tortillas and beans. More than that, we received smiles and kindness and a real desire to please. We got their only chair, and their only box to sit on, and their only two spoons. They had no other furniture except a bowl or two, and the stone on which the women rolled out the paste for the tortillas, and the bit of tin on which they were baked.

A bucket simmered over a smoky fire outside the door, in which more corn was being boiled to make more tortillas. Indian women spend all their time in boiling corn in lime water, in boiling it again in fresh water, in mashing it into paste, in patting it into cakes, and finally in baking it over the fire. They have no time for anything else.

"Adelante!"

The road grew worse and worse. Once we climbed a spiral stairway from which the horses would be rolling yet if they had made a misstep. At the foot of the twist was a rudely built shrine in which a candle burned before a picture of the Virgin.

The road became a mere washout, except that there was no earth to wash, and

so the bucket-sized stones had been tossed about by the freshets.

At intervals we crossed long stretches of flat rock cupped by the hoofs of mules which had used this trail for almost four centuries. That gilding of romance on the Old Spanish Road again became visible. One of the innumerable crosses was crowned with an indistinguishable coat of arms and an obliterated date. A grandee of Old Spain had died there.

ROMANCE IS STILL FOUND ON THE OLD SPANISH ROAD

Near La Quemada we met The Romantic Family. Here the road had sobered up from a debauch of tumbled stone that turned under the feet of the little white horse and it had become possible to trot once more. We crossed a stream in which the clear water gurgled around stepping-stones. There were trees overhead and a narrow, fertile valley, and dikes of stone ran up the rounded hills.

"PLAYING THE BEAR"

In Guadalajara those who play the bear lean for hours against the heavy bars of the windows on the ground floor, telling the girls within how truly their hearts are beating. There is said to be a distressing tendency toward modernity in this city, and those who live in apartment houses which shelter the prettiest girls have been known to throw buckets of water on incandescent bears.

I call them The Romantic Family because they look precisely as hacendados should look, to be even with pictures and tradition. They were moving up the road at a slapping trot, as though they were anxious, as they might well be, to be safe at home before darkness fell.

The two sons rode ahead, 18 years old at a venture—slender, spirited, aquiline—dressed in charro costumes of skin-tight trousers and silk shirts under short jackets. They sat a pair of horses like men who from childhood had ridden rather than walked.

Each nipped his reins delicately in his left hand. His right hand rested on his thigh. Under the knee of each thrust the butt of a carbine. Pearl-handled pistols swung from gold-worked belts, and their spurs gave out a silver jingle in harmony with the tinkling of the bridle bits.

They looked at us politely from beneath the brims of their wide white sombreros, their lips moving in greeting. Behind them rode their sister—dark-eyed, arrogant, beautiful, and somehow appealing.

THE "MANOLA" IS A WONDERFUL CREATION IN COLOR

These shawls are still worn by the señoritas and are very costly, because of the elaborate design and workmanship.

One thought of her as returning from school in New York or Paris to a life of stagnation on a country ranch.

Her mule was an aristocrat, if the god of accuracy will turn a blind eye long enough to permit the concession of aristocracy to a mule. Head up, thin ears twitching, deer-like eyes, it trotted quite as easily as the horses of the cavaliers ahead. She glanced at us and glanced away. Truly there was nothing in our cavalcade to interest her—an American riding a small white horse which was being flicked by Tomaso and a sorrowing American afoot—but she might have looked again out of pure charity.

Then came the elderly mother, slender and dominant, her castellan's eye fierce upon the outlanders who had looked upon her daughter. She was sitting sidewise in a chair on a trotting mule, erect as a grenadier. She catalogued and dismissed us as we passed.

Two pack-mules, nervous and fast, and finally a pair of armed mozos bringing up the rear, with rifles and knives and pistols clanging and battering all over them, scowling at all they saw.

That family was a credit even to the Old Spanish Road. Adams climbed back on his horse out of sheer shame. Then he recanted loudly and climbed off again.

THE TOWN IN WHICH TEQUILE WAS INVENTED

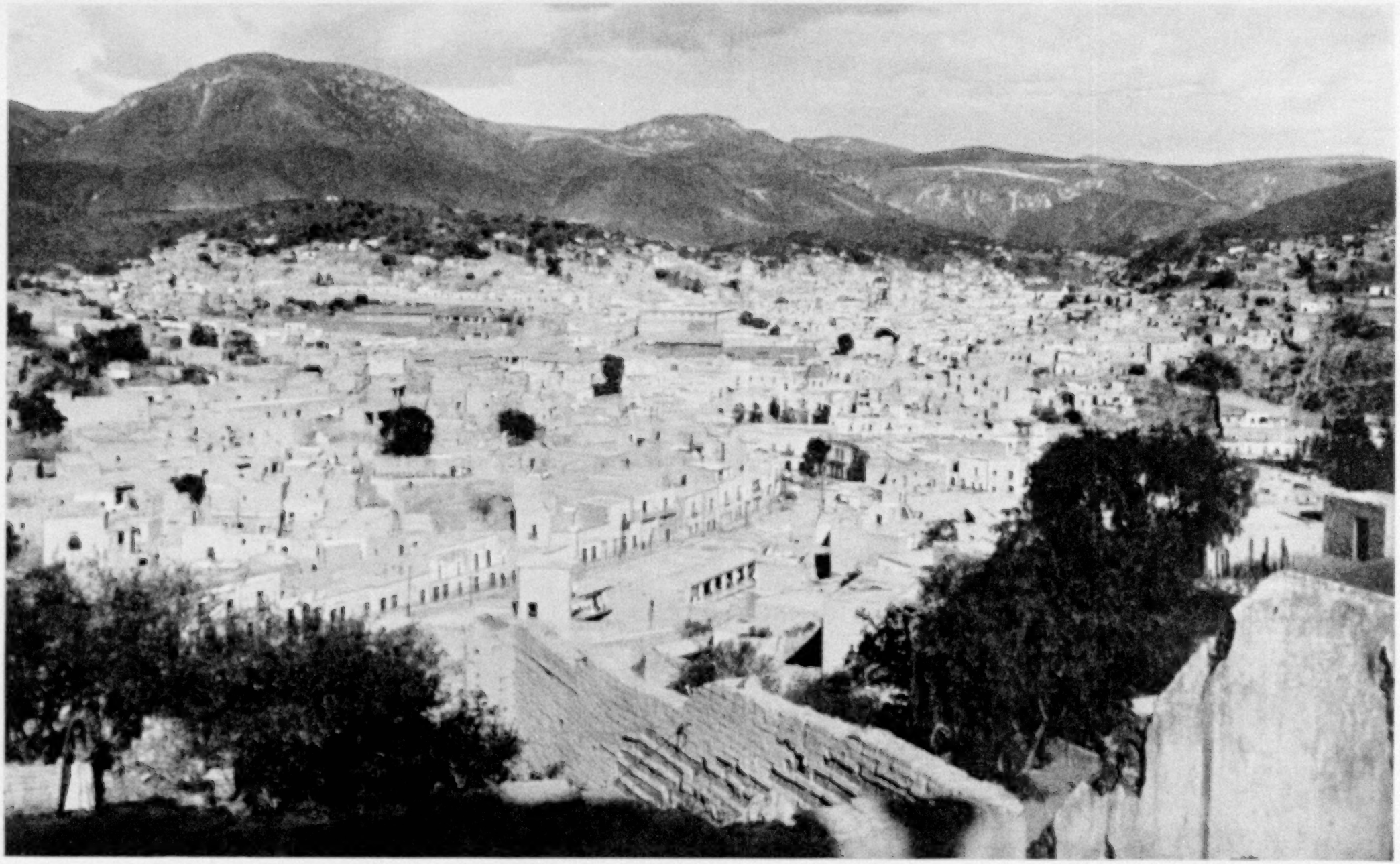
At La Quemada we took the railroad. It is true that the Old Spanish Road led straight on, and that we might have followed it. But romance had been battered out of us. One brief dip into the 16th century had been enough. Doubtless the fine old Spaniards who used that road did not care for such luxuries as hot baths and well-cooked food and protection against the mosquitoes that preyed in battalions, but we come of a softened generation that blisters easily.

A stop was made at Tequila, where, according to tradition, the fiery beverage distilled from the roots of the cactus was invented. Americans who use tequile allege that it is a beneficent drink which has been greatly maligned. They say it carries no early morning headache in its train. More impartial opinion concedes this, but charges that no man can take

Photograph by Gomez Gallardo

YOUNG PEOPLE OF GUADALAJARA IN THE OLD SPANISH COSTUMES

There is more the atmosphere of Old Spain in the capital of the state of Jalisco than in any other city in Mexico. The women of the better class, whose beauty has made Guadalajara famous, drive up and down the main street, from the cathedral to the plaza, on Sunday afternoons between the hours of one and two.



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OVERLOOKING THE CITY OF GUANAJUATO

This historic city, founded by the Spaniards in 1554, is in the center of the rich silver-mining district which was tapped by the Old Spanish Road (see text, page 227).

LOOKING ACROSS THE PLAZA DE LA CONSTITUCION TO THE CATHEDRAL: VERA CRUZ

In the days when the monarchs of Aragon and Castile ruled Latin America, the Old Spanish Road began at Vera Cruz, from which port to Guadalajara it was a broad, well-metaled highway. It also served as a military road, piercing the heart of the country where there was Indian resistance to the European masters.

A CORNER OF A MEXICAN MARKET DEVOTED TO POTTERY MADE BY THE INDIANS

more than two drinks of tequile without being possessed of a desire to fight. It is a white brandy, faintly tinged with yellow, and tastes a great deal like a natural-gas flame.

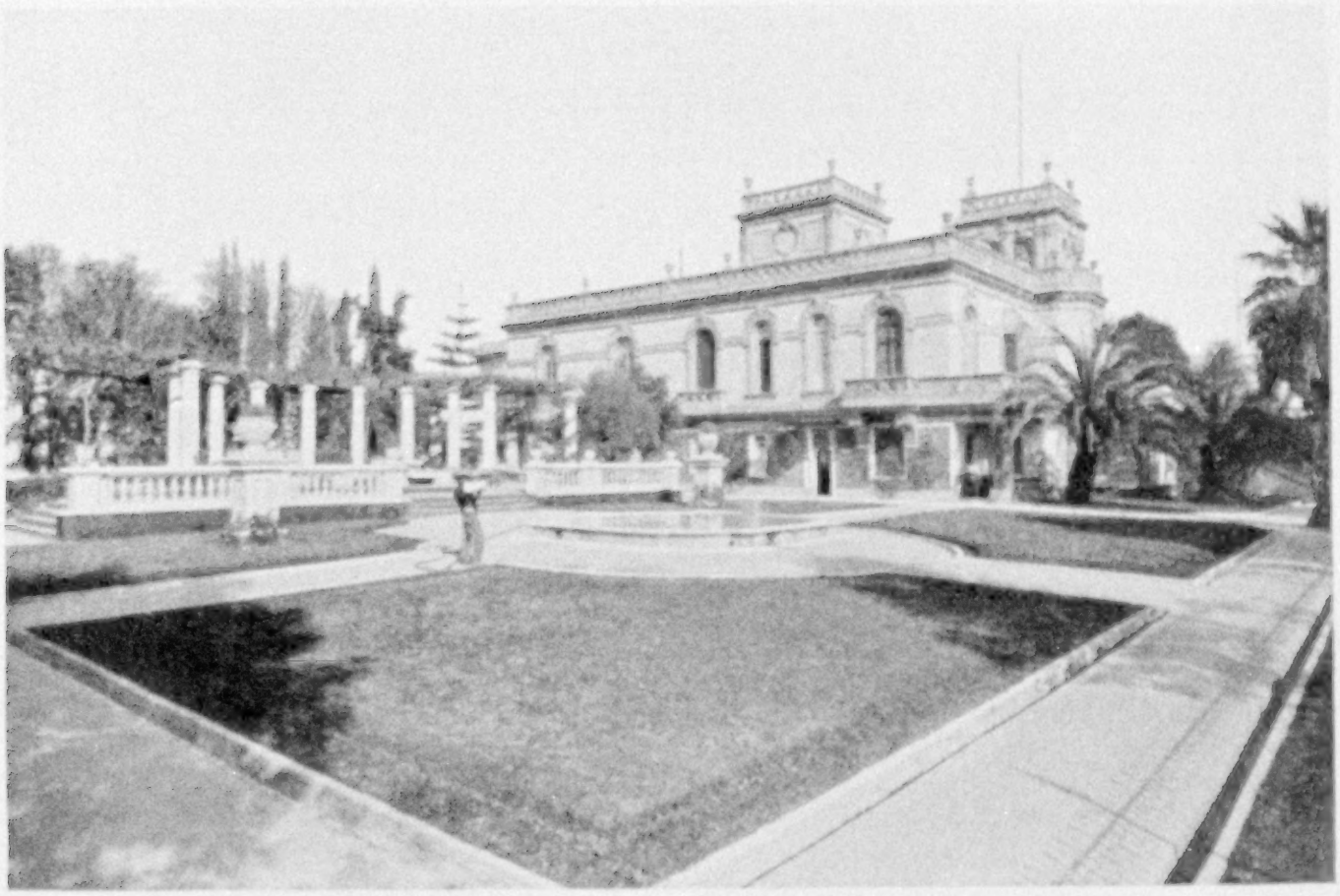
The view of the town of Tequila was entrancing, for the railroad wound about the shoulders of a hill overhead, so that one looked down upon church spires and into green gardens high walled. Fertile fields stretched toward the mountains in the distance.

At the railway station local color marched and countermarched. There were large, heavy hacendados in skin-tight riding breeches and little embroidered jackets that were cut away just below their armpits, with pearl-handled, gold-inlaid automatics belted over billowing shirts of white silk.

A POPULAR GAMECOCK ON A VOYAGE

There was a country gentleman in spotless trousers of white cotton and a Lexington Avenue silk shirt of greens and purples, the tails of which had been withdrawn from his waistband, so that it floated loose and airy in the breeze.

Policemen on fat mules, swords at their sides, rifles canted carelessly over their



A PALATIAL RESIDENCE IN GUADALAJARA'S COLONIA DISTRICT

The first families of Guadalajara are for the most part of unmixed Spanish blood. Since the revolution, many of these aristocrats have moved away, and some of the former leaders of society in Mexico's second city are now living in the United States.

pommels, regarded the crowd coldly from beneath their steeple-crowned hats.

Innumerable old women and small boys sold dulces, which are all sorts of sweet edibles, and a slender man in the most brilliant, sparkling white that can be imagined moved in a cloud of gaily colored toy balloons, so that he reminded one, somehow, of Pagliacci. There were scores of traveling Mexicans, each under a hat that just got in the door sidewise and each eating an orange.

THE WAY ONE GETS ON BOARD A TRAIN IN MEXICO

Leaving Tequila, we reached Orendain, where we were to wait for the Guadalajara train. The waiting-room was a high-roofed shed. There is no need for walls in a climate that approaches perfection. The passengers sat down on the dirt floor.

We did not fall in love with Guadalajara at first sight. Perhaps this was because the day had been abominably hot and dusty in the overcrowded railroad car and because there had been annoying incidents. In Mexico the race is always to the swift, in spite of the adage, and the race starts the moment a railroad train appears in sight.

The racers line up alongside the track, each carrying his or her own baskets and bags and blankets and fruit and chickens and sugar-cane! Experience has taught the old-timers about where the coach doors will be when the train stops.

"Whah!" they exhale in a body.

It is true that passengers are trying to get off the train. That deters no one. The difficulties of the adventure only make it the more alluring.

No one loses his temper or says unkind words. All try to wedge aboard at the same time. Rich persons, like Gringoes, usually hire porters to carry their bags, and then while one rich person watches the porters the other joins in the attack on the car and tries to get a seat.

Once inside, true democracy prevails. One plumps one's self down in any vacant space unless the space's neighbor is a general or has the tequile glare. Inci-

dentally it is the ambition of all good Mexicans to spread themselves over two seats.

IT WAS IN GUADALAJARA THAT PEDRO ALVARADO DIED

Guadalajara is a city that grows on one. In spite of war and looting and street fighting and an occasional murder, there is an air of light gaiety about the town. One walks under the picturesque portals, in which banners of lottery tickets wave overhead, and gazes across the palm-filled plaza to the twin domes the cathedral lifts above its walls of yellowish brown.

The sky is ineffably blue and the climate the ultimate of perfection. It is almost too perfect, for each day is like each other day. To speak of winter here is but a courteous way of saying that there are some days lightly fringed with frost.

One strolls in the public gardens and is offered sharks' teeth and stuffed birds mounted on twigs—two birds billing over a nest is considered a sentimental gift to the newly married—and tanned skins and snarling animals.

More than in any other town in Mexico, there is a suggestion of Old Spain. One learns without surprise that Guadalajara is the Spanish form of the Arab Wala-l-Harajah, or rocky river, and that it was named for the Guadalajara of Spain.

Pedro Alvarado, the cruel and treacherous lieutenant of Hernan Cortez, died here in blood, as was proper.

There are streets of superb private residences, and if the stores on examination seem rather empty, after ten years of piratical war, they are outwardly fine. The hotels are clean and comfortable and the bellow of old iron has disappeared from the church bells' chime. One may sit at ease in his restaurant over a bottle of wine from Spain.

It is true the ladies of the better world no longer promenade in the plaza when the band plays nightly, as they did before reform came to ruin this generation. Then the *peladós* (which, being translated, literally means "skinned ones," and is a humorous assay of the financial chances of the peon) stood outside the outer of the two rows of benches and watched the beautifully dressed men and women march and countermarch inside. Now the pelados have the plaza to themselves.

For all that, one sees the beauties for whom Guadalajara is famous. Each Sunday afternoon, between the hours of one and two, they drive up and down the one narrow main street, from the cathedral at one end to the little plaza flanked by a time-stained church at the other, bowing and smiling to their friends.

The drive is not more than a quarter of a mile long and the street is not more than two automobiles wide. In the hour's drive each must see each other person at least forty times and smile each time; but it is worth it; at least, it is worth it for the men. The pretty women of Guadalajara are worthy of the songs that have been poured at their feet.

The first families of Guadalajara are in great part of unmixed Spanish blood, just as the state of Jalisco is the Spanish state of Mexico. It is magnificently aristocratic.

The tide of racial color flows up from the peon, of course, and no doubt there are first families here whose forefathers were killed by Cortez. But the real aristocrats are as clear-blooded Spanish as one would find in Seville itself. One sees the true Spanish blonde here, and a ravishing creature she is, while the Guadalajara foot and ankle deserve all that has been said of feet and ankles since the world began.

REVOLUTION HAS DRIVEN AWAY MANY OF THE FIRST FAMILIES

It is true that since the revolution began many of these first families are no longer in Guadalajara. The Indian for the first time in 400 years has been able to show plainly his hatred for the white. Some who were once leaders in society are now living in the United States or Europe, waiting for Mexico to become completely normal once more.

Yet the fine old city is too conservative to change so rapidly that the alteration could be apparent to a stranger's eyes. The ferment from beneath only occasionally bursts through the crust.

Young lovers "play the bear" here, just as they do in Spain. It is a matter of

©

A DAUGHTER OF NEW SPAIN

The costumes worn by the higher class Mexican women of today on special occasions show much of the old Spanish influence in the high combs, mantillas, earrings, and, most of all, the costly *mantones*—shawls of rich material, embroidered with flowers blended in every rainbow hue.

©

A GLIMPSE OF MEXICO'S "INDIAN VENICE"

Small gardens dot the shores of Lake Xochimilco, and graceful Indian maidens pole their slender dugouts and square-bowed flatboats along the Viga Canal, bearing fruits, vegetables, poppies, and great white lilies to the market in Mexico City.

XUM

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ON THE LIZARD ROCK NEAR THE FALLS OF ST. ANTHONY AT CUERNAVACA

The explorer in Mexico and Central America finds many queer animals and birds carved in the rocks by pre-Columbian peoples (see "The Foremost Intellectual Achievement of Ancient America," in The Geographic for February, 1922).

© AN OTOMI INDIAN WITH HIS HEAVY CRATE OF CRUDE EARTHENWARE

The art of the potter is handed down from generation to generation by the Indians in the valleys of Mexico. Trotting flatfooted hour after hour over dusty roads, under the burning sun, the hardy native will transport burdens such as this a distance of forty miles to the markets of Mexico City.

©

A TEHUANA INDIAN GIRL IN NATIVE COSTUME

It is quite the fashion to wear a United States twenty dollar gold piece as a pendant on the heavy gold chain about the neck. Legend says that many of these souvenirs, expended for supplies, were left by American miners who crossed the Isthmus of Tehuantepec in the rush to the California gold fields in '49.

XUM

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INTERESTED SPECTATORS OF THE NATIONAL SPORT IN MEXICO CITY

A special box within the arena is provided for young ladies of the best families. The gorgeous *mantones* draped over the balcony rail make a gay splash of color in the crowded tiers of spectators. Fortunate is the toreador whose brilliant performance warrants a summons to this box, to be rewarded by the smiles of its occupants and a medal pinned on his handsomely ornamented jacket.

XUM

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RESTING ON THEIR WAY TO MARKET: MEXICO CITY

This square is the Zocalo, or Plaza Mayor. It dates from the time of the Aztecs and was the place of human sacrifice. Shade trees similar to those which adorn the plazas of Pueblo and Oaxaca once stood here, but during the incessant fighting of successive revolutions these have been destroyed so as not to hinder machine gun fire from the Government Palace and other buildings fronting on the square. The building in the background is the Cathedral.

©

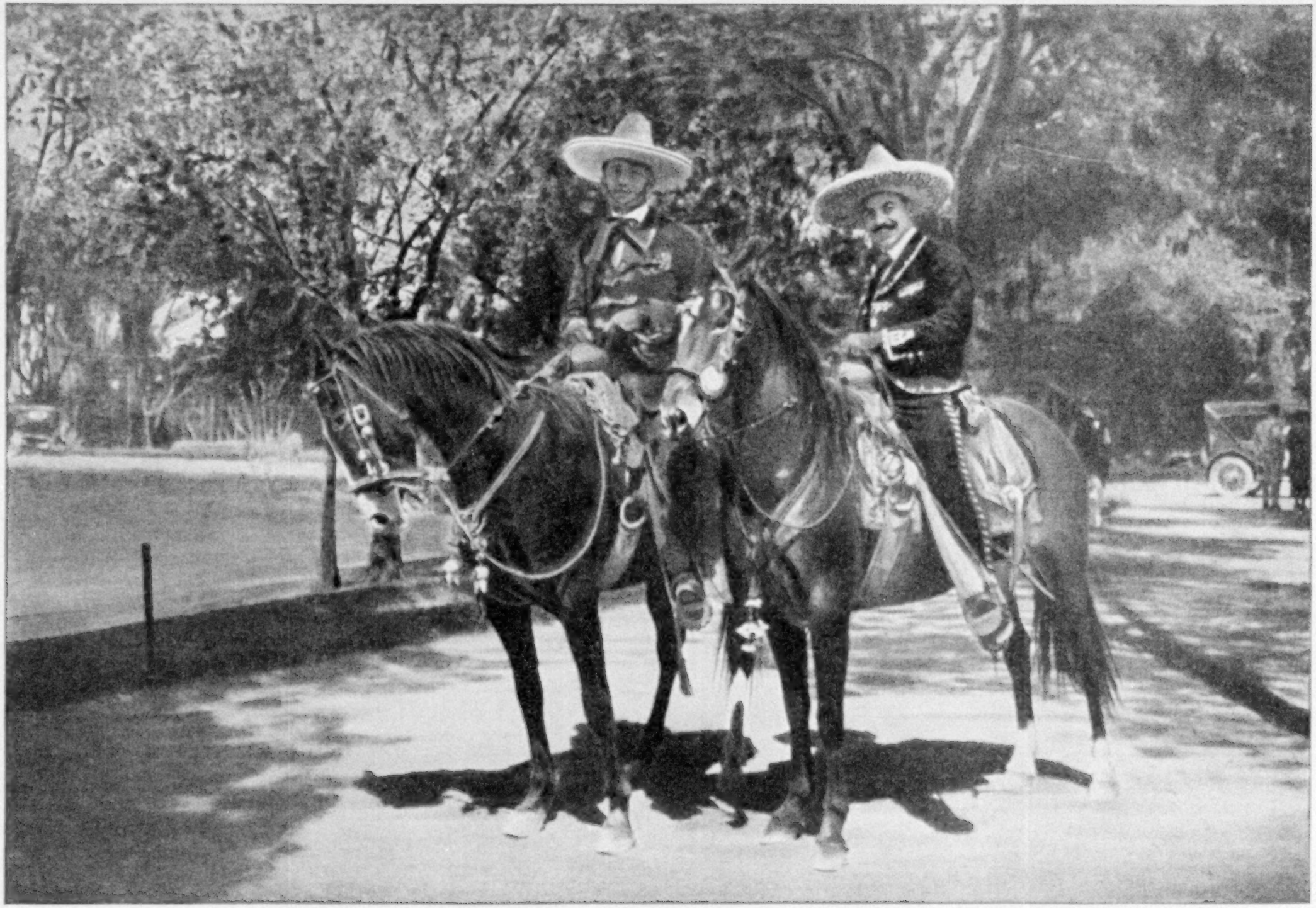
TAKING HIS HOMEMADE BASKETS TO MARKET IN IXTLAN

This jovial looking Indian walks many weary miles over the old Spanish road to find purchasers for his family's handiwork.

©

SHOPPING IN THE POTTERY MARKET, MEXICO CITY

This quaint little maid wears one of the richly colored *China Poblana* costumes, which her older sisters so frequently affect on gala occasions.



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A MORNING RIDE IN THE PARK OF CHAPULTEPEC: MEXICO CITY

The *charro* costume is usually a jacket and trousers of thin leather, or velvet, with many gold or silver buttons and other ornamentation. A wide, handsomely decorated sombrero, immense spurs, and a flowing red necktie complete the picturesque effect, supplemented by a superb example of the saddle maker's art and a gayly bedecked bridle.

©

A RUN ON RAINCOATS

Every town and village of any importance in Mexico has its plaza and market, where a heterogeneous variety of products and articles, mainly of Indian cultivation or manufacture, can be purchased. These white-clad natives are negotiating for raincoats made of palm leaves, split and woven in an ingenious manner.

©

AN INDIAN BEAUTY FROM THE ISTHMUS OF TEHUANTEPEC

The women of the Isthmus wear the most striking of the many costumes to be found in the Republic of Mexico. In addition to her headdress, *huipil grande*, this native wears a colored waist and flowered skirt, with a wide stiff ruffled hem (see also Color Plate V).

©

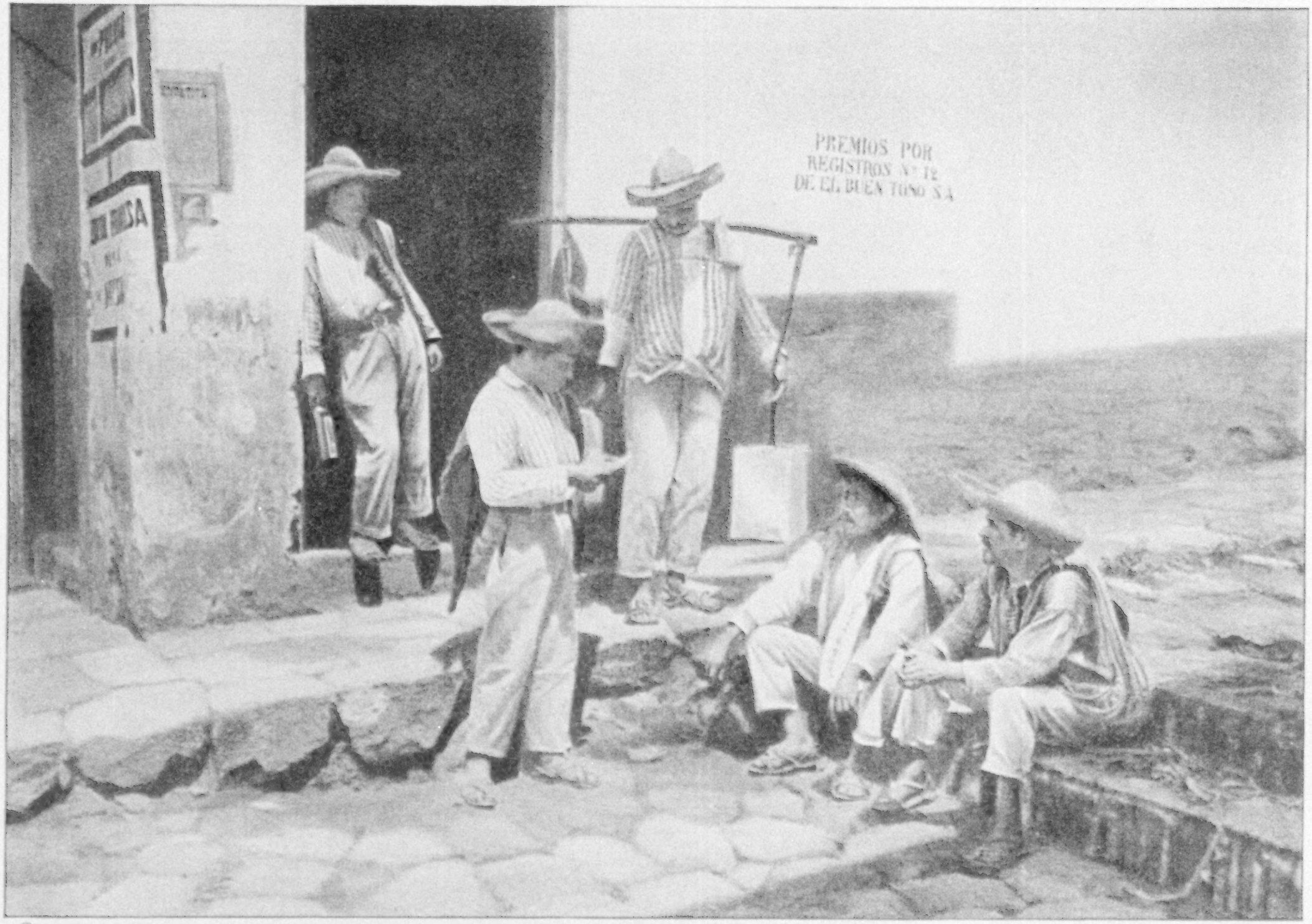
A FÊTE-DAY GATHERING AT JALAPA

The senorita in the central foreground is wearing her *China Poblana* costume, which is in sharp contrast to the latest fashions of the Queen of the May and her ladies of honor in the new stadium, on the occasion of a national holiday celebration.

© A PULQUE DONKEY TRAIN IN HIDALGO

The "national drink" of Mexico is only one of many products of the maguey plant, and resembles buttermilk and water in appearance and taste. The Mexican peon connoisseur stores the freshly mixed liquid in goatskin containers, where it ferments and ripens.

PREMIOS POR
REGISTROS Nº 12
DE EL BUEN TONO S.A



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A GROUP OF NATIVE PORTERS ON A JALAPA STREET CORNER

Their intent expression is occasioned by a love poem which is being read by one of their number. Equipped with headstrap and binding rope, they are always ready to transport anything from a sewing machine to a piano for a small fee.

©

HOMEWARD BOUND FROM THE MOUNTAIN CHARCOAL PITS

The Mexican housewife must keep her brazier ablaze, so Juan's donkey makes several trips every day to the charcoal pits for the dusty fuel.

some personal consequence to me, this playing the bear, for through it I was once deluded into an embarrassing mistake. It was my first visit to Madrid and a Sunday morning. I was wandering through the bright, empty streets when I heard a guitar tinkle and a man's voice in song. In a courtyard a handsome young fellow was singing with true operatic fervor and over a balcony rail five flights up a young girl leaned. The young man finished his song. I applauded and the girl laughed.

The young man sang again.

"It is good," I said in English, with that silly smile with which a foreigner apologizes for his failure in the native tongue, "but I must go."

Whereupon I offered him the equivalent of a dime. The young man placed his guitar carefully on the cobbles and became violently expressive. Five flights up the girl laughed—a tinkling, ice-cold, musical laugh.

Neighbors came out to see and they laughed. The girl went back into her home, still laughing. The neighbors leaned comfortably over the balcony rails and pointed fingers downward and told each other about it and laughed more.

The young man advanced upon me and shook his finger in my face and swore. I did not know Spanish well, but I know swearing. No one can deceive me on swearing. After a time I went away.

When I told the story to a friend who lives in Madrid she laughed.

"He was playing the bear," said she. "When the girl laughed at him she broke his heart."

HOW A THEORY OF REFORM CREATED BANDITS

Men of Guadalajara were open in their declaration that the enforcement of the agrarian laws against the Mexican landholders was responsible for some part of the banditry which intermittently plagued the vicinity.

Under these laws many of the greater haciendas were divided up among the Indians. In almost no case did an Indian do anything with the property, either because of indolence or because he sold to a speculator for a few pesos which were usually spent on tequile. He found himself without the employment the former proprietor had offered and tormented by a hunger that was just as regular as if he had not been newly made free. His only recourse seemed to be in theft and robbery.

Those who know him are not inclined to blame the Indian for the ills of Mexico. He has been played with by demagogues. That the central government has realized the impracticability of enforcing the agrarian laws is the conviction of many men in Guadalajara; yet they may not be repealed. A simple straddle is not to enforce them.

ONE OF MURILLO'S GREATEST PAINTINGS HIDDEN HERE

Once Guadalajara was a stronghold of the Church, although during the revolutionary ten years it did not maintain its hold upon the people as it did in Tepic; and most of the fifty-odd churches in Guadalajara were sacked and closed.

There is a Murillo here of undoubted authenticity, for which $400,000 was once offered and for which more could be obtained if the Church would sell.

During the Peninsula War the Church in Mexico, and especially in Guadalajara, had been indefatigable in its efforts. Much of the gold and silver plate for which the churches of the city were noted was melted down and the proceeds sent to Spain. In return the Spanish monarch presented Guadalajara with this Murillo, which had hung for many years on the walls of the Escorial.

"We would like to see it," we said to authority.

The picture is still in Guadalajara. That much was admitted. Once since the revolution began it was brought from that secret hiding place.

A solemn high mass was to be celebrated and for one day the walls of the fine old cathedral were hung with priceless tapestries and its altar glowed with gold and silver. For that day only Murillo's Assumption glowed down upon the worshipers. That night it was hidden again.

"We dare not show it," said authority. "We hope the mob may forget about it and we may be able to save it for a happier day."

XUM

© Donald McLeish

NATURE RAISED A BARRIER HERE TO PROTECT HOLLAND FROM THE SEA

The sand-dunes, which at this point are of considerable height, form the sole protection of this village in Zealand against inundations from the North Sea.

HOLLAND'S WAR WITH THE SEA

By James Howard Gore

Author of "Roumania, the Pivotal State," "As Seen from a Dutch Window," etc., in the National Geographic Magazine

THERE is a country where the rivers run, so to speak, over the heads of the inhabitants; where populous cities rest below the level of the sea, which persistently clamors for admission; where cultivated fields are buried under unproductive sand, and marshes are drained to become fertile gardens; where islands have been attached to the continent by ropes of sand, and where parts of the solid ground have been severed from the mainland and transformed into islands.

Such a country is the United Netherlands, more familiar to many as Holland, the name of two of its eleven states.

Holland, without quarries, has erected stately buildings and substantial cities and faced miles of seacoast with protecting pavement; almost without timber, she has built navies which have disputed the sea with the most powerful fleets.

Lacking raw materials, Dutch ships have made it possible for factories to run, and Dutch ships have carried finished products to distant lands. With neither coal nor oil to drive the needed machines, the air blowing over Holland has been made to pay toll, and the revolving wings of countless windmills transform this toll into energy.

It is not astonishing that even a sterile country should, by cultivation, produce grain and stock, but it is surprising that Holland should exist, and its existence is a paradox in physical geography.

A LAND CAPTURED FROM THE SEA

Frequently a visitor returning from Europe, in answer to request for news, will say, "The Dutch have taken Holland." This reply contains more of truth than the respondent intends, for the inhabitants literally captured the land from the sea and labor unceasingly to hold their gains.

That which interests the traveler more than the local scenery or the prosperity of the country is the mystery of formation and changing conditions, which is explained partly by nature and partly by human industry.

The ocean said to the Hollander, "You shall have no land here." The Hollander said to the ocean, "We will have a country here"; and they have one, in spite of water, winds, and waves. Holland, more than any other region under the sun, illustrates the power of industry and perseverance, and its people have the undeniable right to look upon their work and say, "It is good."

MAN HAS WATCHED HOLLAND GROW

In other countries, when science seeks to unravel geologic problems, it examines the testimony of the rocks and reads from monuments regarding whose structure history is silent, but in Holland all is new—the gulfs, lakes, and islands have come into existence under man's observation. He has seen within historic times sand close a river's mouth, land converted into water, and lakes dry up and disappear.

The ordinary agencies of change—wind and wave, rain and flood, and the rise and fall of land—have here found a favoring field for their activities.

Long after the greater part of the continent of Europe had become fixed and stable, Holland began its geographic formation and is still pursuing processes intended to hold or enlarge its boundaries.

By the aid of old maps and documents we can learn what Holland was at the time it first found a place and designation on the world's charts, and following them in sequence one can note the changes that have been wrought by the action of the waters of the rivers, the waves of the sea, and the hands of man—in short, how Holland was made.

The power of the rivers one can now see in the inundations; the action of the sea in the sand-dunes along the coast; and the transformation by man everywhere.

Before the birth of the Rhine a great part of the Netherlands, as we now see

© Elmendorf

TEMPERING THE WIND TO THE TASK OF MAKING FLOUR FROM AMERICAN GRAIN AT ZAANDIJK

Zaandijk, near Zaandam, on the North Sea Canal, is a delightful little "swept and dusted" town which has retained many of its old Dutch characteristics. In a small house in Zaandam, Peter the Great of Russia lived while he was learning how the Dutchmen built their ships.

it, was a sea, limited on the German side by a rocky coast which now shows itself in the Tuetoburger Wald Hills. The uplifting of the Ardennes inclosed a sea in the interior of Germany which, shielded by the Alps on its southern coast and protected from the cold winds of the north, became full to overflowing from the melting ice. Finally the pent-up waters broke through, and in the bed thus formed, the Rhine has since been flowing.

With the rush of the waters masses of rocks were hurried along until the moving force exhausted itself; smaller particles were carried farther, and when the sea was reached its resistance robbed the river of its final burden, and sand-dunes formed the northern boundaries of Holland. The pebbles and grains of sand on which rests the soil of Gelderland and Overyssel and the island of Texel show that their primeval home was the basalt regions of the Rhine.

The result of the conflict between the waters of the rivers and the sea into which they seek to find an outlet is seen in the deltas of our largest streams.

The struggles of the Danube have formed about its mouth vast tracts of marsh lands; the Mississippi finds its way into the Gulf of Mexico through six channels, which are with great difficulty kept deep enough to carry the discharging flood; the Nile demands a breadth of 120 miles through which to force its vacillating outlets into the Mediterranean.

So Holland is the present of the Rhine—that Rhine which rushes over the rocks of Schaffhausen, spreads out boastfully before Mayence, passes tumultuously under the fortress of Ehrenbreitstein, and beats in sonorous cadence at the foot of the Seven Mountains.

THE DISSOLUTION OF A MIGHTY RIVER

In its course it reflects Gothic cathedrals, princely castles, fertile hills, famous ruins, cities, groves, and gardens. But in giving up its load for the making of a state it forces its recipient to wall it in and watch with care its tortuous march to its death in the sea.

Before reaching the Dutch frontier it has lost all the beauty of its banks, and flows in great, lazy curves suggestive of approaching old age. The indecision of senility is now seen in the separation of the Rhine into two parts. The main branch shamefully disavows its name and throws itself into the Meuse, a river of French origin; the other branch, insulted by the name of Dannebrog Canal, after going nearly to Arnheim, separates into two parts, one emptying into the Zuider Zee; the other, regaining its early name, though qualified as the Lower Rhine, goes as far as Duurstede, where it divides for the third time.

One of these branches, like a fugitive from justice, changes its name and unites with the Maas near Rotterdam; the other, still clinging to its old name, reaches with difficulty Utrecht, where for the fourth time it submits to a further partition.

One part, denying its once boasted name, drags itself to Muiden, where it unites with the Zuider Zee; the other, called the Old Rhine, flows slowly to Leyden, whose streets it languidly crosses. Then, gathered into a canal, it is carried to its death in the North Sea.

A CANAL BUILT TO JOIN THE OLD RHINE TO THE SEA

But this rite of decent burial is of recent origin. In the ninth century a furious storm not only drove back the waters of the Old Rhine, but threw across its channel great mountains of sand and blocked its entrance into the sea. The river lost itself partly in the sands near the coast and partly in the pools about the surrounding country.

During the reign of Louis Bonaparte a canal was opened through the dunes and the Rhine again conducted to the sea. The mouth of this canal is protected by enormous dikes and breakwaters and the sea itself is held in check by locks, or sluice-gates.

When the tide is high these locks are closed, to prevent the waters of the sea from invading the land; when the tide falls they are opened, to give passage to the waters of the Rhine which have accumulated behind them, and then 3,000 cubic feet of water a minute pass out.

The rivers of Holland, like all rivers whose lower reaches have but little fall, drop sediment along these lower levels, especially at their mouths. The sea has resisted this encroachment, and in retreating has continually fought to regain lost territory. It has thrown barriers across

Drawn by A. H. Bumstead

A SKETCH MAP OF HOLLAND

the river channels to make the rivers themselves destroy the land of their creation; it has buried the rich alluvial soil fathoms deep under unproductive sands, and where it does not throw up sand-dunes as a fortress against itself, the state must accept the challenge and wage a royal battle.

VERITABLE FORTIFICATIONS PROTECT THE LAND FROM ENEMY WAVES

The other rivers that have contributed to the weal and woe of Holland have been less vacillating in approaching their outlets, but equal vigilance has been needed to keep their waters from inundating the land. Dikes must be built on both banks as high and as far upstream as experience demands.

Along the North Sea there are places where, owing to changing winds, the sand cannot accumulate in quantities sufficient to form protecting dunes. Here sea-dikes must be built—veritable fortifications. The three principal dikes of this sort are at West Capelle, near Middelburg; at Petten, near Alkmaar, and at the end of the Helder peninsula.

They are built of earth, firmly packed on the sea-face, and partly paved with dressed Norway granite or Rhine basalt blocks (p. 290).

Beginning at the top, the dimensions are as follows:

Thirty feet across the top, on which there is a double-track railroad for the transportation of materials with which to make repairs.

On the sea-face it inclines at an angle of 30 degrees for a distance of about 40 feet; then the slope is one in three. Here the stone paving begins and extends about 50 feet.

From this point for 100 feet a sod surface is maintained, but beyond that for 110 feet, where the forces of the storm-lashed waves beat hardest, the surface is faced with stone. This carries the face to a point about three feet below high tide; then a flat pavement is laid out to and beyond the low-water line.

As a precaution, three rows of piles are driven in to hold the facing in place, and two other rows of larger piles, with their tops protruding, extend along the line where the waves are most aggressive. On the inner face the slope is more rapid and is protected by sod alone.

The height of the railroad track above high water is 28 feet, and the length of the longest of these sea-dikes is about seven miles.

The amount of labor required to con-

© Donald McLeish

A SENTINEL ON HOLLAND'S BATTLE-LINE AGAINST THE SEA

As no Dutch landscape is complete without a windmill, no history of the country could be told without reference to the work of these valiant allies against the charging forces of wind and wave. Many of them are of enormous size and sturdiness, and are used to turn the wheels of industry as well as to pump the superfluous water from the lowlands up to the sea.

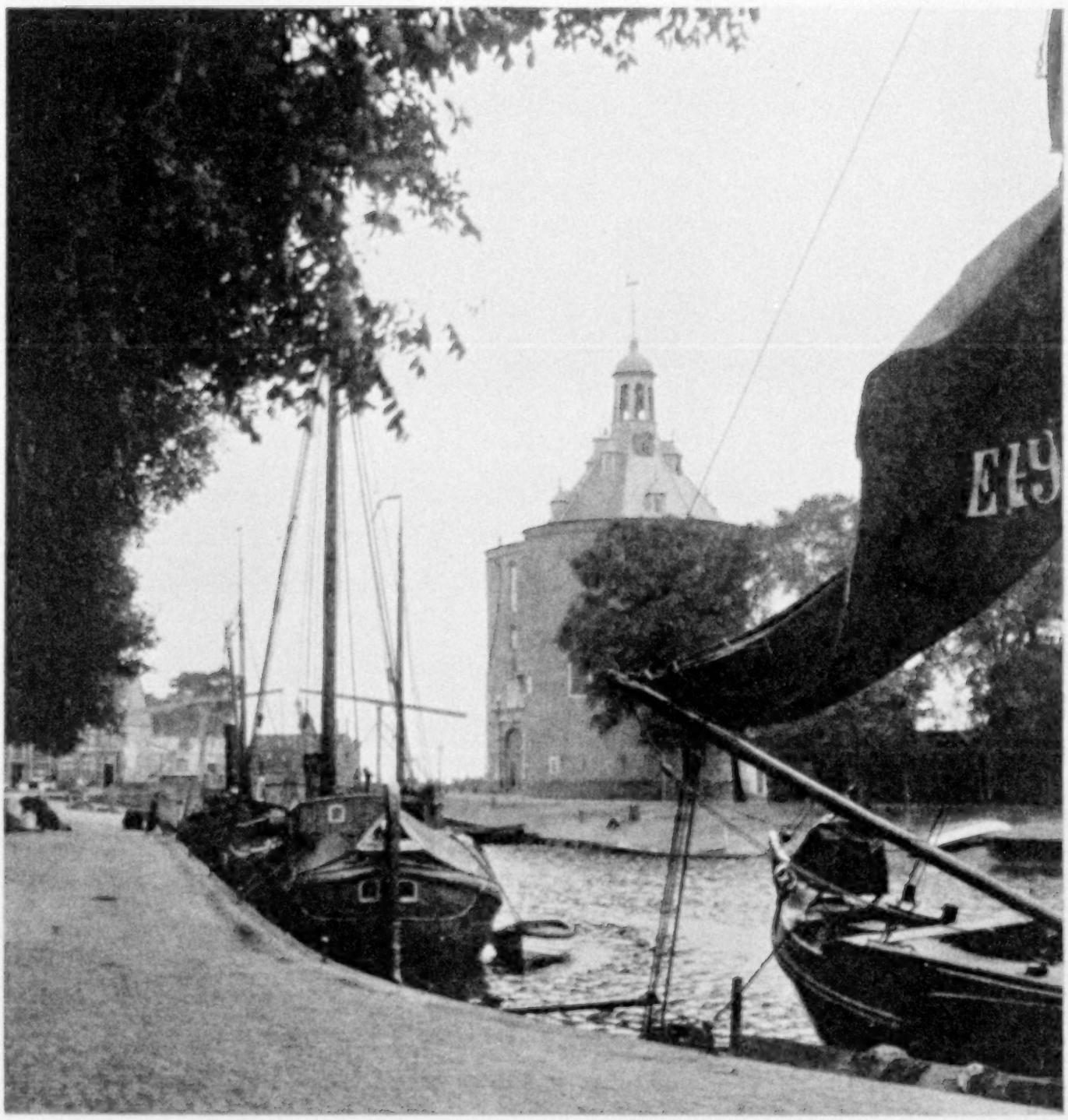
struct such fortifications can hardly be imagined and the cost is well-nigh beyond conjecture. The piles, all of which came from other lands, cost, in place, $4 each.

AMSTERDAM'S HARBOR IS LOWER THAN THE SEA

This defense is not an idle precaution. When the west winds drive the waters from the English Channel to meet those deflected by Norway's unyielding shores, they fill up the North Sea and seek their old course across the Netherlands.

Angered by man's attempt to block the way, the persistent waters seek the vulnerable places in the face of the dike, and any negligence that allows even a single stone to remain loose is sure to pay a direful penalty. Fact and fable tell us of the disastrous results of a leak in the dike.

The sluggish current of the Zuider Zee



Photograph by Emil P. Albrecht

THE OLD WATER-GATE AT ENKHUIZEN GUARDS THE APPROACH FROM THE ZUIDER ZEE

This relic of the ancient fortifications, built in 1540, is called the Dromedary Gate because of its awkward shape. Like most Dutch towers, it possesses a musical set of bells.

is a weak contestant with the remorseless tide of the North Sea. Consequently its shifting sands threatened to close up the harbor of Amsterdam and also rendered precarious the navigation out to and around the Helder. It was therefore decided some years ago to construct a ship canal directly to the North Sea.

This great work was completed in 1870, with the sea terminus at Ijmuiden. The sea being higher at high tide than the water in the harbor at Amsterdam, it was necessary to have big locks at that end.

The traffic through this canal is so great that the water let through in the locking would soon become a source of danger. The harbor of Amsterdam is, therefore, shut off from the Zuider Zee by means of dikes, with a series of locks to permit ingress and egress.

Thus the canal, so necessary to Amsterdam's prosperity, is in league with the enemy. The Haarlem lake-bed, which is the city's kitchen-garden, drains its waters into the filling harbor, and the Zuider Zee, barred out because of its fickleness, takes

© Donald McLeish

WELCOMING THE WANDERERS HOME AT FLUSHING

These women and children have gathered on the wharves to meet the first of the North Sea fishing fleet putting into harbor. Flushing was the first Dutch town to raise the standard of liberty in 1572, after the "Water Beggars" had captured Briel. The son of a rope-maker, born here at the beginning of the 17th century, was the greatest naval hero of the Dutch—Admiral de Ruyter.

to itself the threatening flood through sluice-gates, when wind and tide are favorable, and at other times through the service of enormous pumps over the protecting dike.

POLDERS VARY IN SIZE FROM SMALL PLOTS TO 40,000 ACRES

It is not the sea alone that calls for the defending dikes. Every outlet into the sea must have embankments high enough to overtop the highest incoming tide, for twice every day these outlets become estuaries of the sea, and the land would be covered by the invading brackish water if it were not for the dike-like banks.

The farmers frequently build their dwelling-houses under the lee of these banks, and from the deck of a passing steamboat one can literally look down the

Photograph by Dr. J. H. Gore

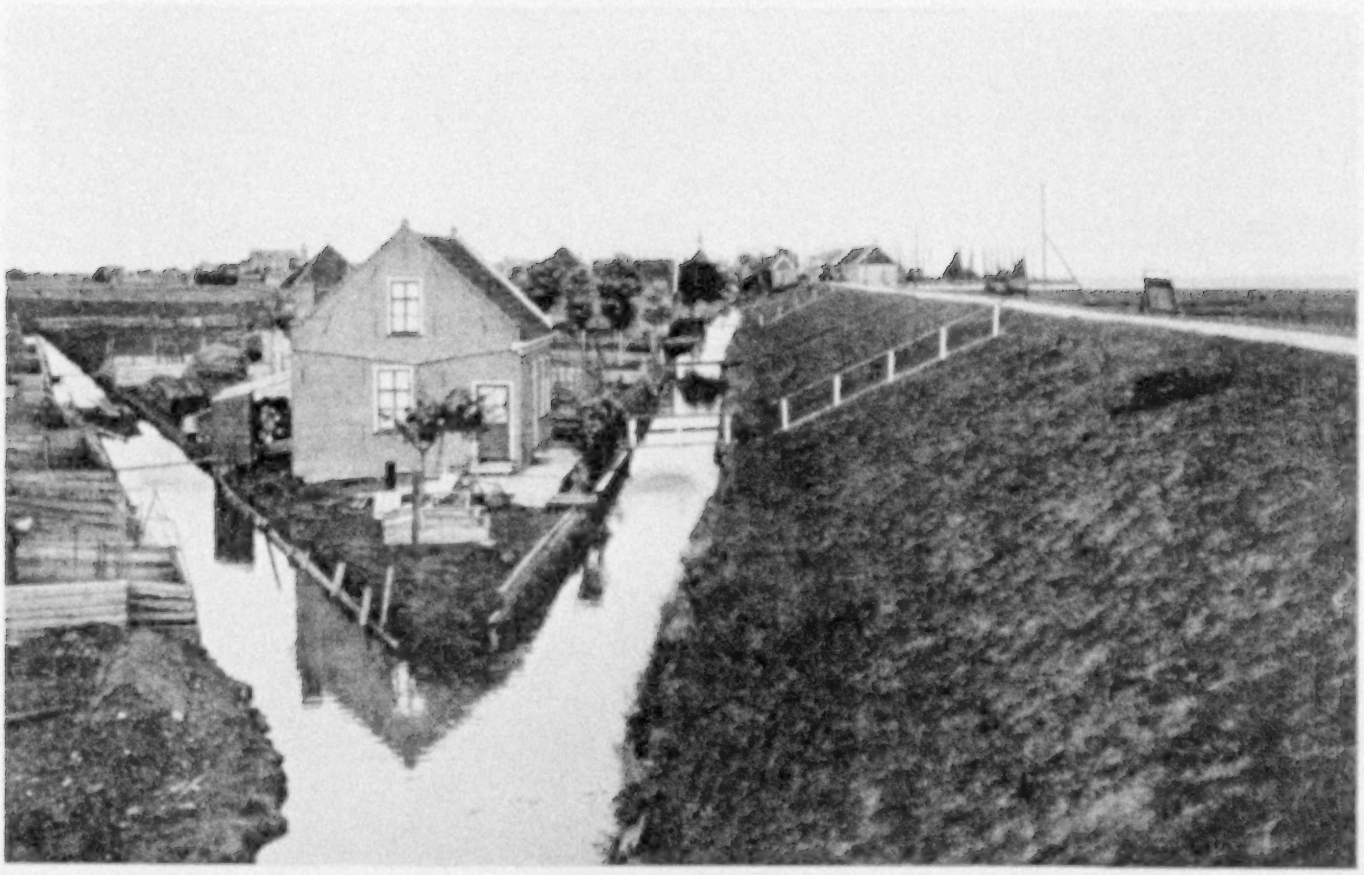
THE SEA-FACE OF ONE OF THE DIKES OF HOLLAND (SEE TEXT, PAGE 286)

According to the act of Parliament signed by Queen Wilhelmina on June 14, 1918, more than 523,440 acres of land will be reclaimed from the Zuider Zee by the building of an enormous dike measuring 230 feet in width.

Photograph from Dr. J. H. Gore

THE RESULT OF A BROKEN DIKE

Holland's hourly peril is a "sword of Damocles" which frequently falls. In a single day the revengeful waters have carried away as many as 40,000 lives (see text, page 319), but the ingenuity of Dutch engineers and the patient industry of the Dutch people have gradually thwarted the sea.



Photograph by Emil P. Albrecht

INVISIBLE FROM THE SEA, VOLENDAM CROUCHES BEHIND ITS DIKE

This village, beloved by English and Dutch artists because of the quaint costumes of its inhabitants, straggles 18 feet below the level of the sea behind a massive rampart. In winter the Zuider Zee falls upon the sea wall with a fury that justifies the height and width of the barrier.

Photograph by Fred H. Rindge, Jr.

ON THE CANAL AT UTRECHT

The two main thoroughfares of this city, where so much history has been made, are the Oude Gracht and the Nieuwe Gracht (Old and New Canal). So far below the street level do these canals flow that there is a subterranean city of shops and warehouses beneath the pavements, the doorways of which open on a level with the waterways.

Photograph by Emil P. Albrecht

VOLENDAM'S FISHING FLEET IN HARBOR FOR THE DAY OF REST

The pleasure craft in the right foreground finds it difficult to obtain a mooring berth on Saturday afternoon, when all the fisher-folk have returned from the sea and furled their sails until Monday morning.

chimney, though he may hardly, as some have claimed, see what the farmer's wife is cooking for his dinner.

The Dutch word *polder* is a term applied to any area of land protected by an encircling dike and drained by its own system of pumps. Some of these are barely below the general level and need only a slight embankment; such are usually of firm soil, and after the removal of the water become arable fields. Others were originally ponds or lakes, or deposits of wet muck which have to be inclosed by more substantial embankments, and the removal of the water in the first instance as well as subsequently is a serious matter.

The polders vary in size from two or three acres to 40,000 acres and they lie from a few inches below the level of the sea to 18 feet below it. The former were drained by single windmills, while in the latter cases strong dikes were required and the best pumping machinery kept in operation for years.

The interior of each polder is cut with ditches and canals, which conduct the drainage to the point where pumps are established to lift the water over the bank into the encircling canal. In summer droughts the reverse process brings in a bountiful supply of water for irrigation purposes.

THE WATERS HAVE GREATLY MODIFIED THE MAP OF HOLLAND

In the Rhineland district there are 90,000 acres of land which would be under water still were it not for the skill, capital, and energy of the doughty Dutch warriors. And there are even now within the borders of Holland thousands of acres of first-rate mud aching to contribute toward the making of Dutch cheese for the foreign markets, but their existence is smothered by the same thousands of acres of overlying brackish water.

There are also many Dutch fingers itching to feel the guilders that would come in exchange for the cheeses thus produced. In time the government will set about to relieve the aching and the itching and the names now attached to ponds and lakes will appear as prefixes to polders.

North Holland has undergone great changes in its water-washed boundaries as well as in its interior character. Even going no further back than 1288 and accepting as reasonably accurate the map of that date, we can trace, century by century, if not year by year, the fortunes of the constant war with the waters.

By 1775 the outward form had changed somewhat, while the interior had melted so rapidly that the feeling became general that determined efforts should be made to prevent further wasting. These efforts were at first precautionary, the war being wholly on the defensive.

The holding of the streams in check, keeping them within their proper channels, allowed some of the marshes to become dry. This gain of land whetted the people's appetite for more, and plans were put into execution for draining some of the shallow lakes, which had now become isolated.

The Beemster Lake was drained by the use of 44 windmills, which, after two years' constant operation, converted this body of water into a polder of 28 square miles. Its rim dike is more than 20 miles in length and the land within lies at a uniform depth of 16 feet below the level of the sea.

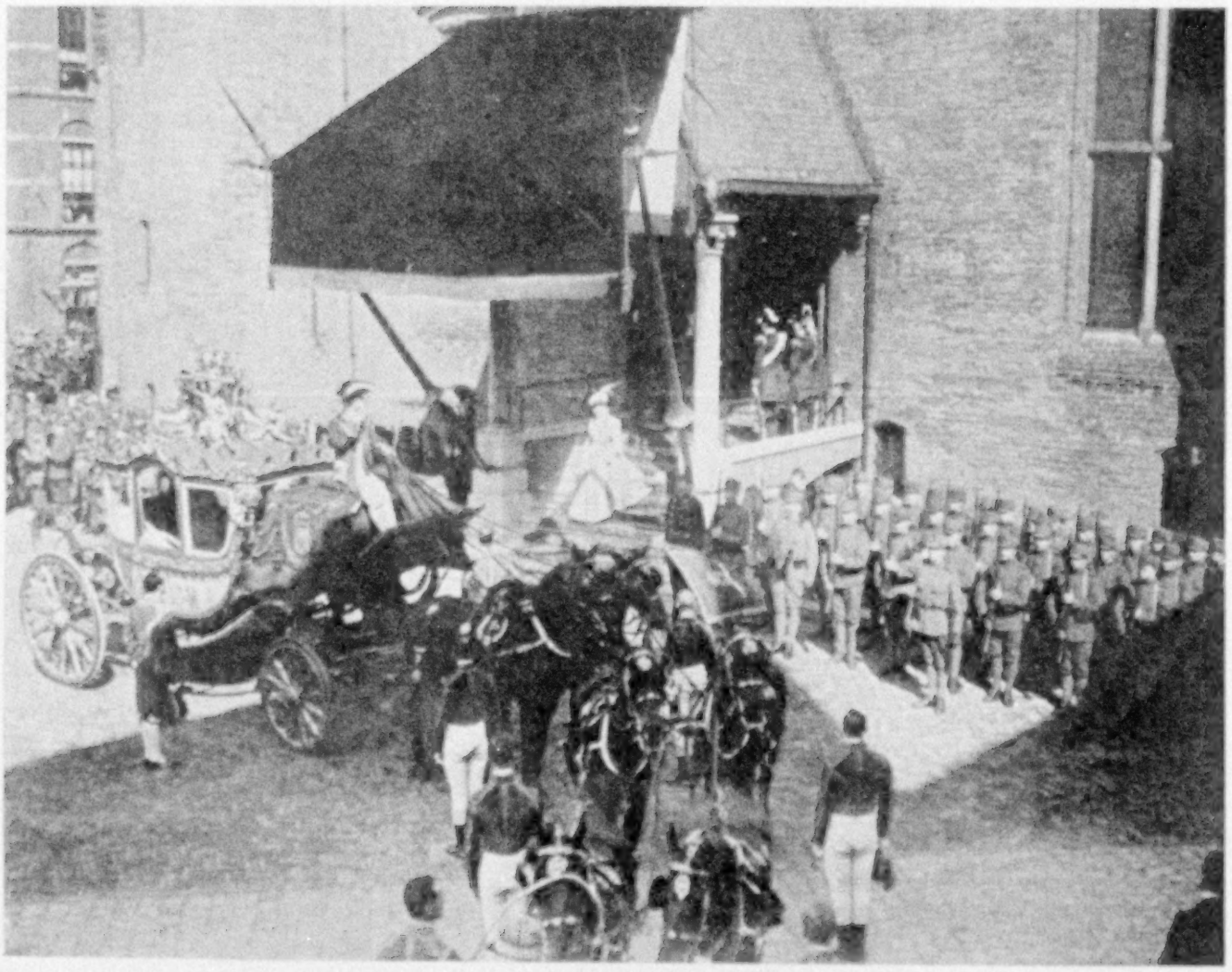
This protecting rim serves also as a wind brake, and the forward vegetation in the early summer proves that within the basin the climate is milder than it is without.

The most important change wrought by man upon the face of Holland was the drying up of the Haarlem Lake. This lake, or, as it was called, this sea, had been formed by the joining of four smaller lakes and enlarged by frequent inundations until it attained a circumference of 37 miles.

The soil of its shores was very fertile and so readily dissolved by water that no prediction could be made as to which way or to what extent it would grow.

With an outlet into the Zuider Zee, through a branch known as Het Ij, vessels could enter it and pass from shore to shore. At one time fleets of 70 ships had fought upon the lake and on more than one occasion storms have strewn its banks with wrecks.

Fortunately sand-dunes skirted its western shore; but for these the lake would have joined the North Sea and North Holland would have become an island. The friable character of the banks and the fierce winds that ruffled its surface



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THE CEREMONIES WITH WHICH HOLLAND'S QUEEN OPENS PARLIAMENT ARE MEDIEVAL IN CHARACTER (SEE ALSO ILLUSTRATION ON PAGE 323)

But Dutch ideas of popular government have been far in advance of those of many other European countries. Freedom of religion and freedom of the press obtained in that country before the American colonies were founded, and our Declaration of Independence is much like the Declaration of Independence of the United Netherlands, signed at Westphalia in 1648.

made it necessary for the people near at hand to be always on the defensive.

As early as 1643 a Dutch engineer, Jan Adriaanszoon Leeghwater, published in book form a detailed plan for the draining of this lake. At this time Holland was too much engaged in the war with Spain to undertake a work so extensive and so frought with difficulties as this was conceded to be. The political complications following the peace of 1684 and the war between England and France caused Leeghwater's project to be forgotten.

DESTRUCTIVE STORM AWAKENED HOLLANDERS TO ENGINEERING NEEDS

As is usual in such matters, final action was delayed partly because of the many rival plans submitted and partly because of the great cost of the undertaking.

However, the authorities were suddenly awakened to the danger coming from this foe within by the storms of 1836. On November 9th a violent west wind drove the waters of the lake into the streets of Amsterdam. They swept over one polder after another and covered dikes and roads and even bridges. On Christmas Day a fierce east wind arose and did not rest until a part of Leyden was inundated. When the inventory of the damage was made it was found that 100,000 acres of land had been under water and 18,000 acres of polder completely filled.

An entire year was consumed in freeing the submerged lands and great losses were found to have resulted from the overflow.

This was the final provocation. The challenge was accepted. In 1839 the States General decided to attack this enemy and placed the entire matter in the hands of a commission of 13 members.

Photograph by Emil P. Albrecht

AFTER THE SATURDAY CHEESE MARKET AT EDAM

This town of the Netherlands, which to the average American mind suggests the savory, pungent odor of a delicious cheese, was originally named Ydam because it stood at the mouth of Het Ij (the Y) and was the water-gate to Amsterdam at a time when there was only one water approach to the Dutch metropolis.

It would be interesting to the engineer to discuss the special expedients devised and the pumping mechanism finally adopted. English engines were employed, and the 11 pumps at each of the three stations raised at every stroke more than 2,000 cubic feet of water, while the total output of all the pumps in 24 hours was more than 1,000 tons.

At first only one station was equipped, so fearful was the commission that the performance of the engines and pumps would not come up to their expectations. It worked alone for 11 months, during which time the level of the lake was lowered only 5½ inches.

The other two stations began in April, 1849, and in July, 1852, the lake was dry, the work having consumed 39 months instead of 14, as at first contemplated. In this time 946,000,000 tons of water had been removed.

A gridiron system of canals, with a total length of 750 miles, furnishes the interior drainage with skirting roads for a length of 140 miles. The level of the land in the polder is 14 feet below the water outside.

The completion of the drainage of the lake was celebrated by the issue of several medals. The one struck by the government contained in Latin the inscription: "Haarlem Lake, after having for centuries assailed the surrounding fields to enlarge itself by their destruction, conquered at last by machinery, has returned to Holland its 44,280 acres of invaded land."

BOTTOM OF LAKE CONVERTED INTO CHOICEST LAND

These acres are now occupied by about 12,000 people, and their products are the choicest of the land. In this vast plain, so recently the bottom of a navigable lake, straight roads are bordered with trees, substantial and even elegant farmhouses are seen on every hand, periodical cattle markets are held, the motor bus makes its stated trips, a steamboat plies on the en-

circling canal, grain mills are at work, and life within the polder is independent of that without.

The commission was well within the bounds of modesty when, after recounting the material benefits resulting from this work, closed its report with these words:

"But this is not all. We have driven forever from the bosom of our country a most dangerous enemy; we have at the same time augmented the means for defending our capital in time of war.

"We have conquered a province in combat without tears and without blood, where science and genius took the place of generals and where workmen were the worthy soldiers."

They might have added: "And where wooden shoes and quinine were invaluable allies."

MIDGET WINDMILLS ACT AS SENTINELS

The land that is lower than the sea becomes so saturated with moisture that it must be drained in order to be productive. This drainage is primarily into ditches; but, the water of the sea being higher, there can be no direct outlet; hence the water from the ditches must be raised by artificial means high enough to run through well-guarded sluice-gates into the sea.

In the three-sevenths of the entire territory that is below sea-level, ditches form the dividing line between farms. When these become full, the water is pumped by windmill power into larger ditches, having higher banks, and from these into another still higher, until a canal is reached which has an outlet to the sea.

The first lifting is done by private parties, but when larger areas are interested in the prompt handling of the water, it is in the hands of the government, and steam pumps are employed.

As you travel through Holland you will frequently see windmills so small that you will be inclined to think they are toys. Not so. They are sentinels. With vanes outstretched, they are always in the wind and ready to respond just as soon as they are thrown into gear. This is done by a wooden float resting on the water in the ditch beneath.

The rising water lifts the float, and when it reaches a height which threatens to submerge the surrounding fields the machine is thrown into gear, and its revolving wings warn the farmer to start his pumps and keep them going until his truthful ally, by coming to rest, tells him that the danger is past.

This entire question of drainage, the conduct of rivers to the sea, and the protection of exposed shores is under the direction of the Ministry of Water Affairs. So important is this department that it might with justice be called the Ministry of Outward Defense and Inward Expansion.

The visitor to Holland is apt to think that all of the windmills which one sees are for freeing the land from water. Hundreds and even thousands know no other service in this land

> "Which rides at anchor and is moor'd,
> Where people do not live, but go aboard,"

but there are others which furnish the power for sawmills, so plentiful in this shipbuilding country, or drive machinery for the extraction of oil, for grinding grain, or crushing stone.

If one wants to see Holland on its windmill side, one should go to Zaandam and look upon its famous 400 and enjoy the way in which their proud owners, in a lavish use of strong colors, seem to catch just the right tones to go with the gray-blue haze that so often hangs over the lowlands.

WATER MUST BE FOUGHT UNDERGROUND, TOO

The war with the watery element is not always open and above ground. In digging nearly every foundation a superabundance of water is encountered and the building itself must rest upon piles.

It is fascinating to watch a pile-driver at work—to see it swing a log into place and then with stroke after stroke drive it home, while a steam-pump industriously strives to keep out the seeping water. The piles are placed in rows, like the teeth of a comb; then the tops are sawed off at the same level, tenon cut on them, and great horizontal sleepers mortised fast.

The space between these beams is filled with cement and the whole covered with a heavy flooring, but the pump must keep up its monotonous throbbing. On this

© Donald McLeish

WE WELCOME YOU TO WALCHEREN

Walcheren is the westernmost of the islands of the Netherlands and is part of the province of Zealand. It is a sort of animated museum of quaint costumes.

© Donald McLeish

FRANS HALS MODELS IN A MIDDELBURG ARCHWAY

One of the most fascinating spots in the whole of the Netherlands is this old abbey with its dim cloisters. The church tower is known as Long John, the melancholy murmur or wistful tune of whose bells sounds every seven minutes, day and night.

© Donald McLeish

OVERSEEING THE NET-MAKER'S JOB ON THE ISLAND OF MARKEN

Many of the homes on this "picture-book" island have been handed down from father to son, and the number above this fisherman's door is not that of his house, but indicates the year in which it was built.

© Donald McLeish

THE MORNING MILK DELIVERY

A dog's existence in Holland is not one long round of loafing and of amiable companionship with master or mistress; rather, life is real, life is earnest, for "mankind's best friend" in this country where there is no reward of bones for the lazy-bones of the kennel.

XUM

© Donald McLeish

CHANGING FASHIONS NEVER BOTHER THE HEADS OF THESE MERRY MAIDS FROM MIDDELBURG

Most of the Dutch women arrange their hair flat on their heads and confine it with a skullcap, over which they wear helmets of thinly beaten gold or silver. These are in turn mounted with one or two lace caps, varying in design according to city and province.

© Donald McLeish

SHE KNITS HIS SOCK WHILE SHE WAITS FOR HER JACK AT FLUSHING

A distinguishing characteristic of the costume worn by these girls of Arnemuiden, on the island of Walcheren, is a pair of curious corkscrew ornaments of gold fastened to a gold band on each side of the stiffly starched cap.

© Donald McLeish

YOUNG DUTCH CLEANSERS

The housewife of Holland has a world-wide reputation for thrift and orderliness. These robust young women have paused for a moment to gossip at the doorstep of a quaint home opening upon one of medieval Middelburg's winding thoroughfares.

XUM

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GRANDPA PAUSES IN HIS STORY-TELLING TO PERMIT A GEOGRAPHIC INTRODUCTION

It is said that the men smoke more persistently and wear larger sabots in Volendam than anywhere else in the world.

© Donald McLeish

A LETTER FROM OVERSEAS

These charming sisters of the Netherlands give their immaculate cottage a "spring cleaning" at least once a week.

© Donald McLeish

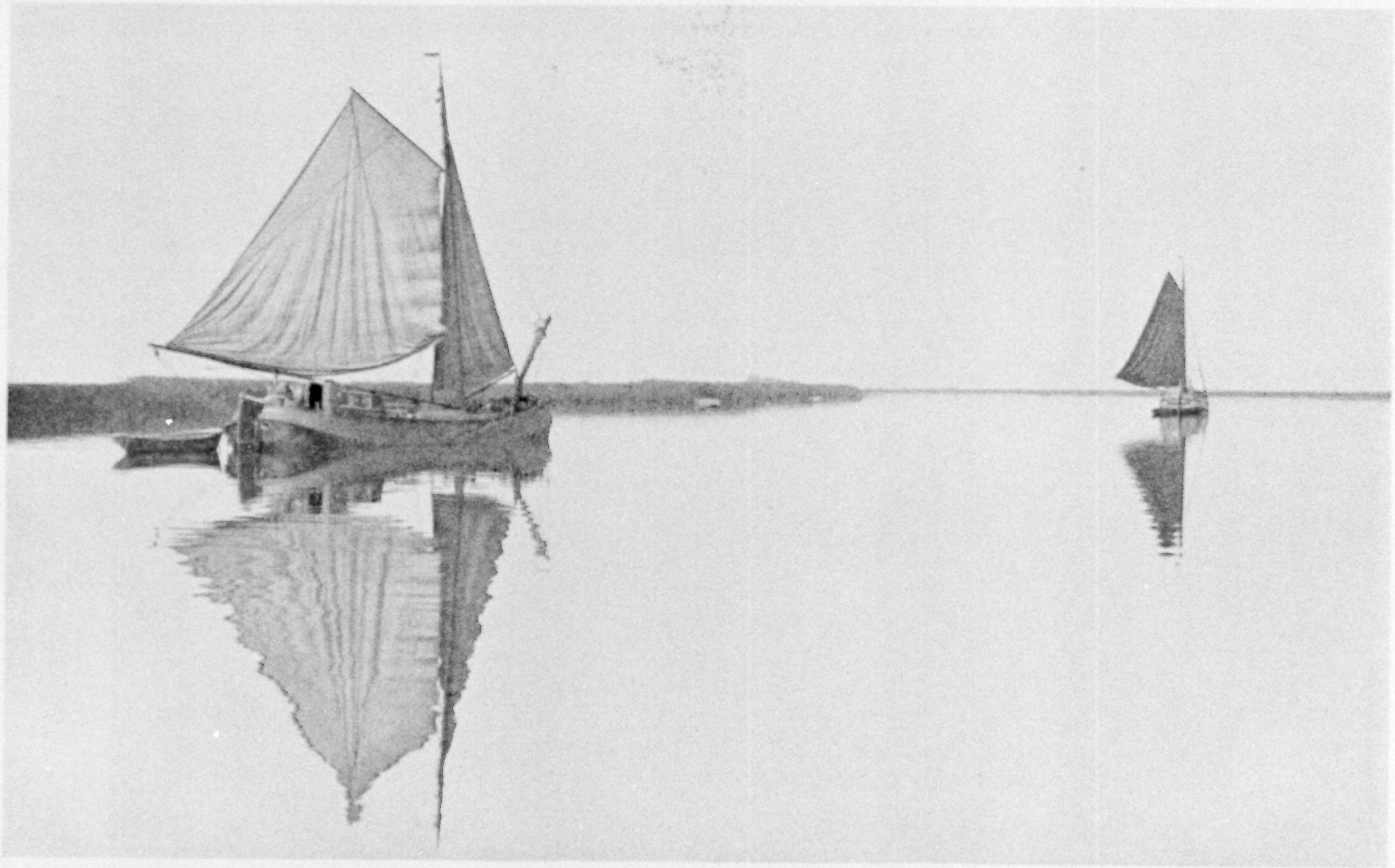
THE MILL ON THE DIKE

Tradition says that the Dutch first learned the value of the windmill in Palestine during the time of the Crusades. If so, the progressive country has been amply repaid for the brave spirits she sent to the Holy Land. Mother and miniature are Zealanders.

© Donald McLeish

LIKE FATHER, LIKE SON: THE RIGGING LESSON

The size of a "Dutchman's trousers" is not a mere costume vagary, but is an outgrowth of his occupation. As a seafaring nation, the men of Holland evolved voluminous pantaloons to afford freedom of action for their duties on board ship.



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RIDING THE WATERS ABOVE THE TOWNS OF HOLLAND

Floating in a dead calm on the River Ijssel near Kampen, these fishing boats will drift with the tide to the Zuider Zee and thence sail to the North Sea.

© Donald McLeish

THREE FEET HIGH BY SIXTEEN FEET BROAD

In other lands they may patter, but in Holland they clatter, clatter, clatter on their way to school. No judge of racial characteristics would ever think of applying the somber word "taciturn" to the rising generation of Dutchmen.

© Donald McLeish

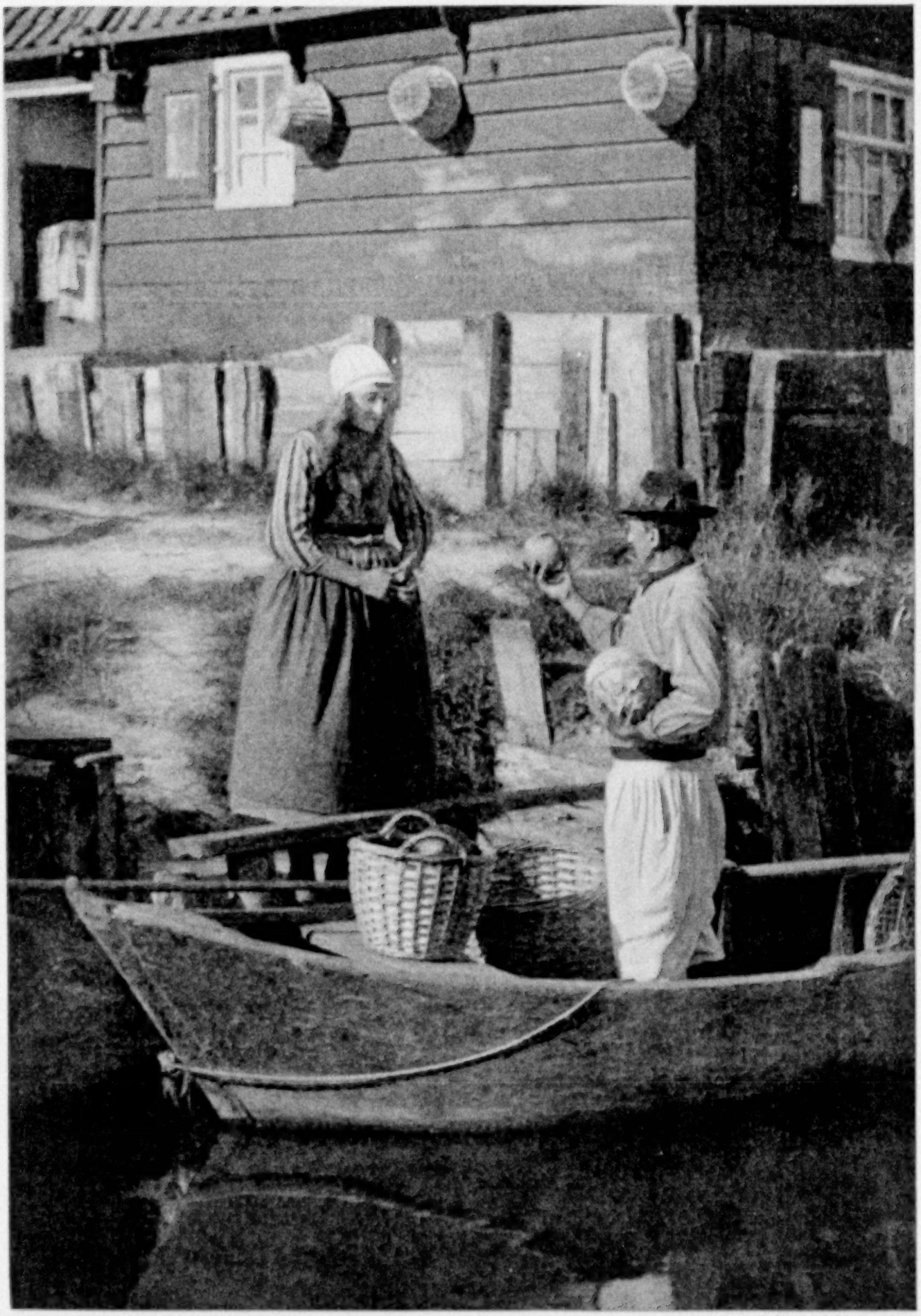
BECKONING SAILS CONJURE UP DREAMS BEYOND THE HORIZON

He awaits the day when he shall follow his forebears in search of commerce to the Dutch East Indies, to Dutch Guiana, and to other outposts of the Netherlands colonial empire, which has nearly fifty times the area and seven times the population of the mother country.

© Donald McLeish

THERE ARE NO IDLE HANDS IN HOLLAND

Ornamental square, flat plates and bulbs of gold, and a necklace of red coral lend a touch of color to this Zealand woman's stiffly starched lace headdress. The short, very tight sleeves which the Dutch women affect keep their arms a rosy red.



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THE VEGETABLE MAN OF MARKEN DELIVERS HIS PRODUCT BY WAY OF THE ALLEY CANAL

Like the founders of ancient Rome, the inhabitants of Marken have built their homes on seven mounds (see text, page 319). Small boats supplant the cart and the wagon in the community's delivery service.

floor the brick walls are erected, and later a six-story building stands on wooden feet.

When will the pumping cease? Never. Under the building there is a catch-basin, and when it becomes full it must be emptied, and this will be often, because the canal at its side is higher than the basement floor. No wonder that Diderot was surprised that the Dutchmen ever dared to go to sleep.

THE RABBIT IS A DANGEROUS FOE

The sea has had its allies also, two in number, both living, and, though man's inferior in strength and genius, they, by their rapid increase, are dangerous foes.

The sand-dunes which are thrown up along the seacoast form protecting hills; but as free sand they shift so much and so rapidly that if unrestrained they may leave a vulnerable spot unprotected or bury productive land under a blighting mass.

It therefore becomes necessary to check the migrations of these shifting ridges, and this is done by planting upon their sides a sort of reed grass. This grows quite rapidly under the injunction, with a penalty attached, "Do not pull the grass," and very soon their roots, forming a sort of vegetable cement, aid in holding in place its nourishing soil.

But these same roots are tempting tidbits for the burrowing rabbits, which open insidious small tunnels that are dangerous as opening wedges.

It becomes necessary to make war on this ally of the enemy and be on the alert to arrest the damage before it is too late.

The other foe is the dreaded teredo, or borer of the sea. It appears rarely, it is true, but in such numbers and is so destructive that commissions of learned specialists have been appointed to study its life-history and to devise means for protecting timber from its attack.

About the middle of the last century it was discovered that a shellfish was industriously perforating submerged piles and wharf timbers. A hasty examination showed that at many places the very bulwarks of Holland's safety were honeycombed.

The discovery of this condition threw the country into dismay. Its continuance meant destruction, while ignorance of any preventive stimulated the fear that the worst possible calamity was at hand.

Fortunately, the means which were taken to protect the piles undesignedly assisted in the extermination of the pest. Large-headed nails were driven into the wood so close together that they practically gave to it a coat of mail. But chemistry was more potent than physics, for the oxides from the rusting nails were so disagreeable to the teredo that it was detained near the surface, where its exposed condition soon resulted in death.

However, they have reappeared, and caution has kept the more important piles covered with a copper sheathing. Along the dikes of Friesland enough copper has been used for this purpose to cover practically the entire dike. A worm had made Holland tremble—a triumph denied to the tempests of the ocean and the anger of Philip of Spain.

THE SEA AS AN ALLY AS WELL AS A FOE

If the sea has been Holland's foe it has also been an opportune ally. In 1574 the Spaniards, led by Valdez, laid siege to Leyden. In a short time the volunteer defenders of the city were completely cut off by the besiegers, who built 60 forts to command every possible means of egress by sea or land, and Leyden was isolated and helpless.

But its courageous people did not lose heart. William of Orange had sent them word to hold out for three months, within which time he would come to their assistance, for on the fate of Leyden depended that of Holland. Meanwhile within the city walls provisions began to grow scarce, and the circle of the besiegers became tighter day by day.

William, who occupied the fortress near Delft, seeing no other way to succor the city, conceived the design of raising the siege of Leyden by cutting the dikes of the Ijssel and the Maas and driving out the Spaniards by water, since it could not be done by arms.

This desperate design was forthwith put into execution. The dikes were broken in 60 places, the sluice-gates at Gouda and Amsterdam were opened, and the sea invaded the land. A fleet of 200 barges followed the inflowing tide, the

Photograph by Emil P. Albrecht

THREE OF THE REASONS WHY MARKEN ATTRACTS SO MANY TOURISTS

The studied quaintness of Marken is almost suggestive of an opera bouffe. Its women are famous for the number of their petticoats, as are the inhabitants of other Dutch towns, but the brilliantly embroidered waists with striped sleeves and the close caps are peculiar to the island.

XUM

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GIRLS OF MARKEN ON ONE OF THE ISLAND'S NUMEROUS CANALS

Marken is subject to inundation, especially during winter, and boats are attached to almost every homestead in case of need (see text, page 319).

Photograph by Emil P. Albrecht

THE MEN OF MARKEN ARE SAID TO BE THE BEST FISHERMEN ON THE ZUIDER ZEE

These tall, blond, blue-eyed skippers wear gaudy kerchiefs knotted around their necks, breeches that spread out in the wind to an astonishing width, dark stockings with soles covered with leather, and large wooden sabots, which they usually kick off while on board the boats.

© Donald McLeish

"WE ARE FOUR"

Marken's immutable fashion decrees that the hair shall be close-cropped above the eyebrows, with two long curls hanging down over the ears. The houses are built on wooden piles, the living rooms being approached by steps.

© Elmendorf

SUNDAY MORNING ON THE MAIN ROAD TO MIDDELBURG

Many of the excellent brick highways of Holland were built during Napoleon's time.

amphibious Zealanders routed such Spaniards as resisted this novel water attack, and the power of Spain in the Netherlands was broken for all time.

The people of Holland have never forgotten the effective assistance of the onrushing waters, and all who look upon the City Hall of Leyden will be reminded of the fact by the inscription over the right-hand door that the good city for 131 days withstood its besiegers.

Thus far in the narrative of Holland's incessant war with the sea mention has been made of successes only. Unfortunately, there have been periods of reverses.

More than once a terrific deluge, which is a part of every Dutchman's to-morrow, has swept along the valley of the Rhine, the Ijssel, and the Maas, and even from the sea itself. In a single day the revengeful waters have carried away twenty, thirty, and even forty thousand lives. Of those prior to the eighteenth century we have only traditional accounts, but faithful and voluminous reports have been published of the terrible flood which occurred in 1776 along the valley of the Overyssel. At that time many were drowned and property to the value of millions was destroyed.

In 1775 the waters of the Maas were driven back by a violent westerly storm until they overflowed the locks at Delfshaven and laid waste the populous plains surrounding Delft.

The entire western coast was strewn with wrecked villages, Enkhuizen and Texel were under water, and 100,000,000 guilders did not cover the loss.

MARKEN IS BUILT ON MOUNDS

There is one piece of Holland soil from which even Dutch determination does not restrain the invading waters—one battleground which for generations has been held under tribute by the foe. It is the Island of Marken, in the Zuider Zee, about a dozen miles from Amsterdam.

This island, detached from the mainland in the thirteenth century, lies out of the ordinary routes of travel; hence its inhabitants have perpetuated the quaint costumes and queer customs that prevailed when their land became an island.

The ground is barely above the water at high tide, so that any unusual storm would sweep completely over such protecting dikes as the people could afford to build. With characteristic shrewdness, they long ago counted the cost of such fortifications as the exposed position would necessitate and wisely concluded that the ground at stake would not justify the expenditure.

They therefore dug such canals as would drain the soil under ordinary conditions, and used the earth thus obtained in building hillocks on which houses are erected. On seven of these mounds houses are grouped, while on the eighth is the silent home of the dead.

The buildings that are not so favorably situated with respect to the highest point of the hill are built on stilts, the lower story being merely framework and only the upper part occupied. A gangway connects with adjacent houses, so that in case of an overflow isolation cannot be complete.

When the plan, already agreed upon, to drain the greater part of the Zuider Zee is executed, Marken will be a part of a polder with such close connection with the mainland and its conventionalities that its side-show character will probably disappear.

HARDSHIPS HAVE MOLDED THE HOLLANDER'S CHARACTER

In most countries wealth begets idleness. In Holland, never. A little crevice in the dike, unnoticed for a few hours, might permit the devastation of a district, and even with the most watchful care the possessions of one day are no guarantee of the wealth of the next.

When one community is rejoicing over its escape from an inundation, the people near by may be counting up their losses in life and treasure; thus one sympathizes with the other.

This possibility of a coming misfortune makes every one generous, and the hundreds of charitable institutions in Holland prove that this generosity assumes tangible form. "Have no fear for Amsterdam," said Louis XIV; "I firmly believe Providence will save her because of her benevolence to the poor."

When the surging waters approach dangerously near the vulnerable points

Photograph by Emil P. Albrecht

A CORNER OF THE DRY-GOODS MARKET IN MIDDELBURG

Middelburg has been happily called the round-faced city. Even the plan of the town itself has this characteristic, many of its streets wending spirally about its famous old abbey, founded in 1106 and scene of the brilliant meeting of the Knights of the Golden Fleece in 1505.

of an important dike, every shovelful of earth must count; the opposing forces must be placed and used to the best advantage, and safety is assured only when obedience is obtained. Discipline is therefore a shining Dutch trait.

The inhabitants of a country are, in a large measure, molded by external influences. They respond to their local environment. And the geography of their country is a preface to its history, as well as a key to the understanding of the people's habits, genius, and institutions.

In no other land is this so clearly true as in the Hollow-Land, and the tourist who wishes to bring home something more than memories of cities, monuments, and cathedrals, who wants to feel his soul expand by coming close to influences that are character-building, should include in his itinerary this birthplace of religious freedom, public schools, and civil government.

In making such a visit he would follow

© Elmendorf

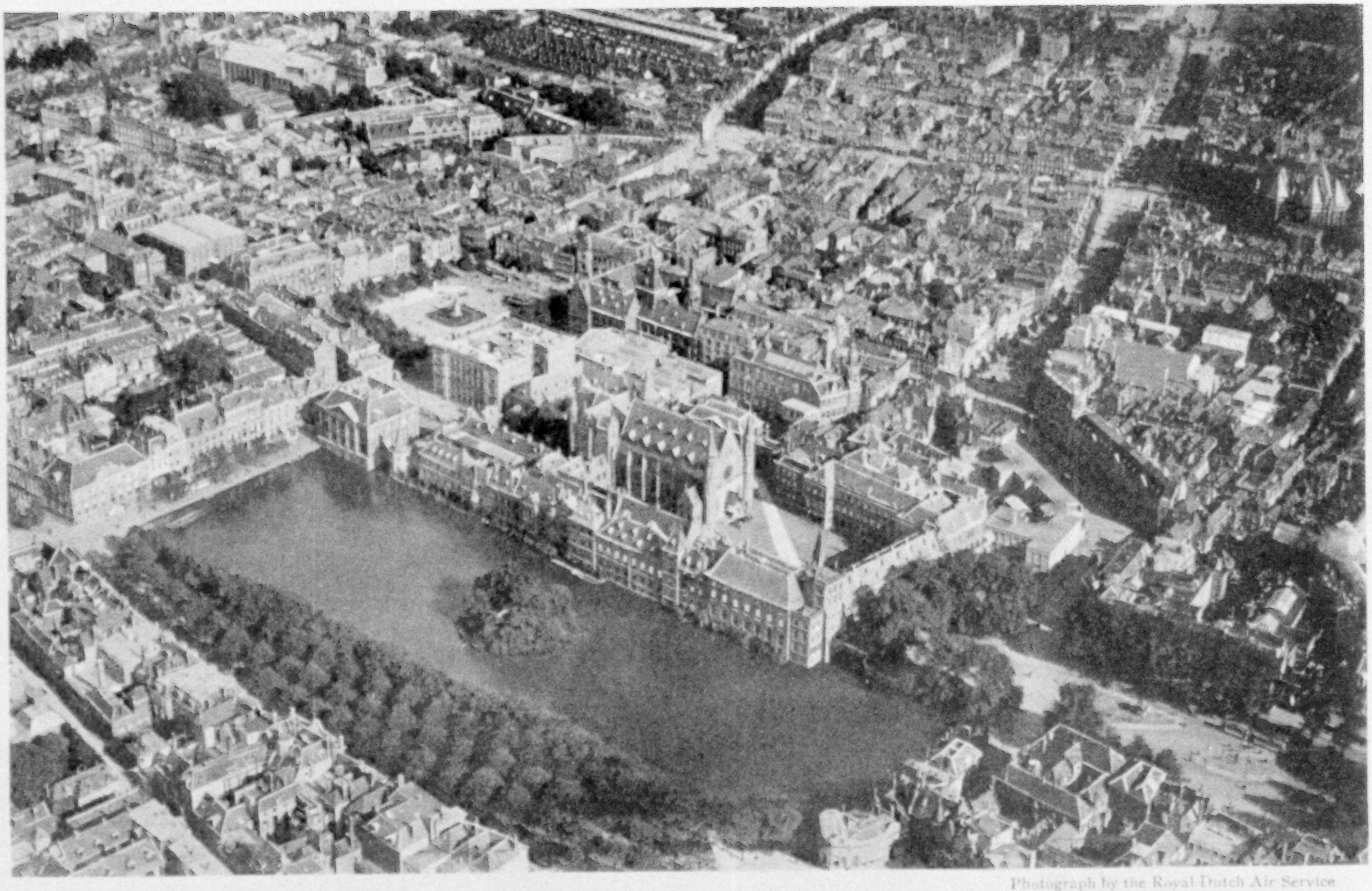
A DUTCH FAMILY IN MIDDELBURG ON MARKET DAY

Perhaps the slight trace of Spanish blood in the veins of Zealanders has inbued them with a bit of the Latin manner, which differentiates the inhabitants of this part of the Netherlands from the taciturn average Dutchman.

Photograph by the Royal Dutch Air Service

AIRPLANE VIEW OF AMSTERDAM: HOLLAND'S COMMERCIAL METROPOLIS

In the center of the picture, facing the open space (Leidsche Plein), is the municipal playhouse (Stads Schouwburg), erected in 1890-94. To the left, on a canal, is one of the city's finest hotels, much patronized by Americans. The large square building, also facing the Leidsche Plein, is one of Amsterdam's department stores.



Photograph by the Royal Dutch Air Service

THE CAPITAL CITY OF THE NETHERLANDS

The Hague is one of the most charming cities in northwestern Europe. In the foreground is the Vyver, a pretty sheet of water frequently enlivened by swans. Beyond it, the building with the two towers facing the square is the Hall of the Knights, used for joint sittings of the two Chambers and for the opening of the States General by the Queen (see page 294). It was here that the second International Peace Conference was held in 1907. Other important buildings shown in the illustration are the Ministries of Foreign Affairs, Justice, and the Colonies. The building at the upper left corner of the Vyver is the Mauritshuis, containing a celebrated picture gallery.

© by Waldon Fawcett

BEASTS OF BURDEN HITCHED THREE ABREAST IN HOLLAND

The dog as a draft animal plays almost as important a part in the lives of the people of the Netherlands as it does in the Arctic. They are cheerful workers and are very seldom abused. Note the proportions of the equipage headlight.

in the footsteps of John Quincy Adams, who at the age of 13 was a student at the University of Leyden, and of Washington Irving, who left his impressions in "Tales of a Traveller" and "Knickerbocker's History of New York."

Strolling leisurely through this country, at every step one's eye will be caught by half-hidden treasures, and unconsciously he will endow himself with a gallery of mental masterpieces like those of Hobbema, Ruysdael, Van de Velde, and Wouverman. His heart, warmed by the delightful newness of Holland, will echo the conclusion of Thackeray: "I feel a Dutchman is a man and a brother."

SOME OF HOLLAND'S ILLUSTRIOUS NAMES

Taking a glance at the country's history, he will see that here arose leaders who gave up prosperity for the sake of what to some seem mere abstract questions; here women and children helped in fighting the good fight, both exhorting their men not to yield, and themselves fighting on the ramparts. Here William the Silent, De Witt, Barneveldt, Prince Maurice, and William III evolved their great schemes of European policy and pulled the strings that moved the world.

Snell, who was the first person to make an attempt to determine accurately the size and shape of the earth, lived in Leyden, the city that so hospitably opened its doors to the English Puritans, afterward the *Mayflower* Pilgrims.

Erasmus, "who laid the egg that Luther hatched," was born in Rotterdam, and Bayle, who boasted that he was a Protestant of Protestants, for he protested against all systems and all sects, lived there.

The quiet village of Voorburg was the home of Vossius, the famous professor of eloquence. In Holland Spinoza, so misunderstood, so maligned, and then so revered, found a home.

Delft is justly proud of having given to the world Grotius, the publicist, prodigy of Europe, who at nine years of age wrote Latin verse and at eleven composed Greek odes.

© Elmendorf

A FARM CART IN THE STREETS OF MIDDELBURG

In the municipal museum of this town the first microscope and the first telescope, credited to Zacharias Jansen, may be seen, as well as many excellent paintings by Dutch masters.

Three Hollanders — Lippershey and Jansen, spectacle-makers of Middelburg, and James Metius of Alkmaar—vie for the honor of having invented the telescope. The thermometer was introduced into northern Europe by Boerhaave, the father of clinical instruction in medicine. One of the first newspapers printed in Europe was in Dutch, and Leeuwenhoek was the founder of microscopy, the science of the infinitely little.

It was while a soldier at Breda that Descartes became interested in mathematics, the science to which he later made so many valuable contributions. Huygens brought glory not only to his native country, but to all Europe; and though the claim of Coster as the inventor of movable type has been renounced by the Hollanders, the incontestable glory of the Elzevirs remains as a precious heritage. They can point with pride to the enterprise and daring of these printers who diffused throughout Europe the French philosophy of the eighteenth century and who gathered up, propagated, and defended human thought when independence of thought was proscribed by despotism and forbidden through fear.

The genius of Babylon proudly boasted, "It is I who made the Euphrates." But culture upon its banks did not continue long after its making. The genius of Holland, even in a greater measure, can say, "It is I who made the Rhine, the Maas, and the lands through which they flow," and culture upon their shores grows with the passing years.

Notice of change of address of your GEOGRAPHIC MAGAZINE *should be received in the office of the National Geographic Society by the first of the month to affect the following month's issue. For instance, if you desire the address changed for your May number, the Society should be notified of your new address not later than March first.*

Photograph from Techno-Photographisches Archiv

PEASANT TYPES OF THE SPREEWALD; GERMANY

In most difficult circumstances, the Wends, or Sorbs, have resolutely retained their language and their Slavic customs in the midst of a German population.

THE WENDS OF THE SPREEWALD

By Frederick Simpich

Author of "The Story of the Ruhr," "Along the Nile, Through Egypt and the Sudan," "The Geography of Our Foreign Trade," "Every-Day Life in Afghanistan," etc., in the National Geographic Magazine

LONG ago, when the Goths laid waste to western Europe, a small band of half-wild fugitives hid for safety in the great swamps near the Oder—that low, flat, wooded region known now as the Spreewald. The Wends, this odd fragment of a lost tribe call themselves; and to this day they are hiding there, in this Spreewald swamp. Clannish, isolated, and happiest when left alone, they are concerned not at all with the rise and fall of nations around them.

Though in Germany, the Wends are not of it. Even the Germans themselves look on this lost tribe more as curious specimens of an ancient race than as a part of their citizen body. They are Slavs.

Probably 1,500 years have passed since the Wends first colonized in this great swamp, and sallied forth, led by their pagan kings, to kidnap children and to plunder food in what is now Poland and Germany. To-day only a few thousand of the tribe remain; but through all these centuries they have clung tenaciously to their own odd speech, their social forms and superstitions; and, except for a few of their queerly clad girls, who sometimes go to Berlin as nursemaids, the Wends seldom quit their Spreewald haunts.

Yet, content as he is with his eel-traps and cucumber patch, his hayfield and cherry trees, the wary Wend will drive a sharp bargain with outsiders who come trading for his carved novelties, his wooden shoes and dishes, his smoked eels, and the cucumbers of his island gardens.

ANCIENT SPREEWALD VILLAGE IS BUILT ON MANY ISLETS

Stranger than his diet of eels and cucumbers, however, and stranger even than his hermit-like seclusion, is the unique plan of the Spreewalder's village and his method of getting about. The Spree River, rising down near the old Bohemian frontier, flows up through Saxony into Brandenburg and splits here into hundreds of brooks and canals whose watery network lies all over this Spreewald region and forms thousands of tiny islands. The ancient village of Lehde, built 1,400 years ago, literally covers a whole group of these islands, each individual house standing on a tiny isle all its own.

So, instead of having streets and sidewalks like any normal town, a Spreewald village is served entirely by these crooked water streets. Every family has at least one boat, and in summer the boat is the street-car, so to speak; and there are lines of public boats, poled by stalwart "motormen," that run on schedule time over regular routes and loops called "Grobla."

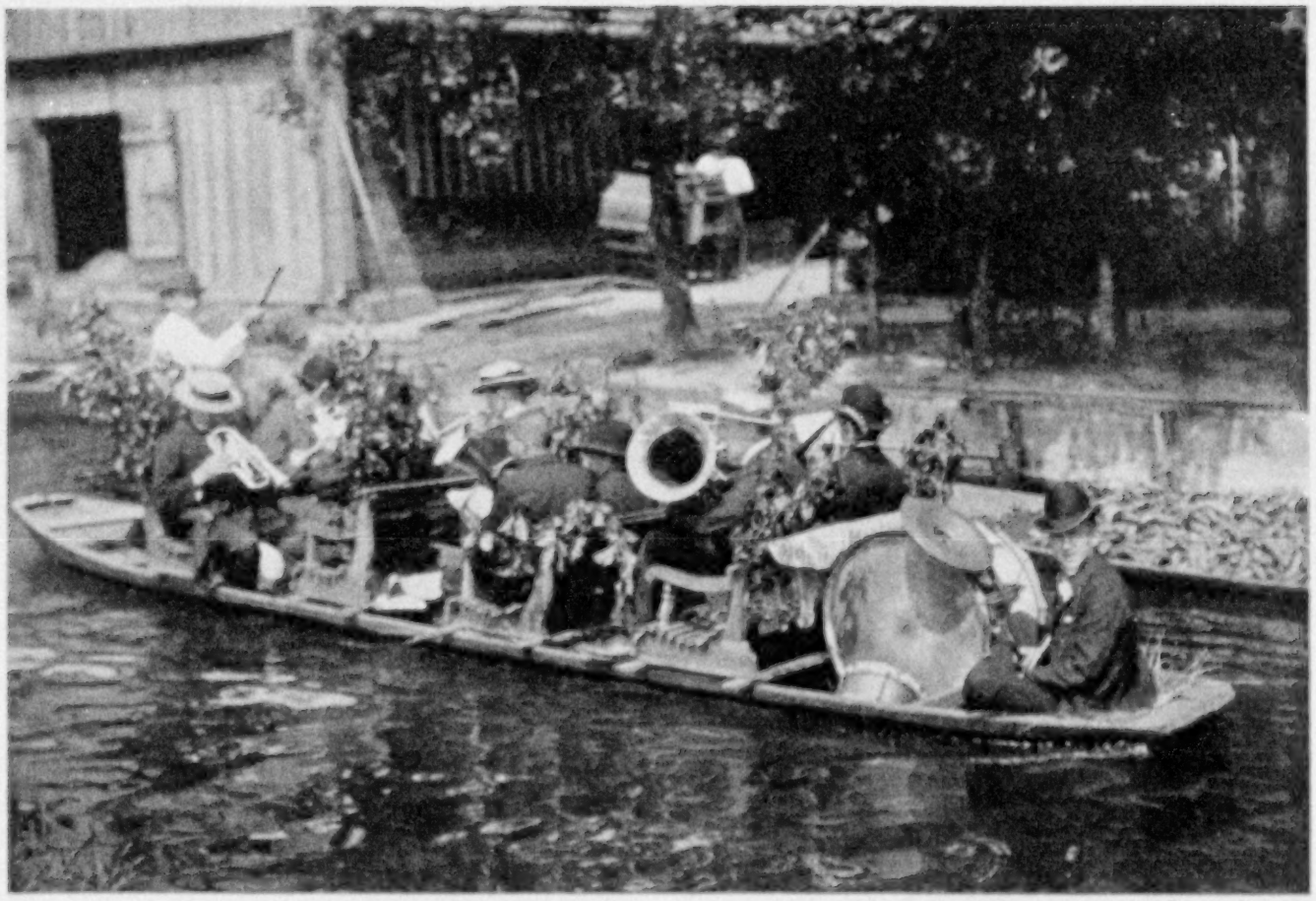
DISTANCE IS MEASURED BY BOAT TIME

All along these water streets there are sign-boards that greet you and point the way to various settlements. But instead of saying "2 miles," for example, to such or such a place, the sign says "2 hours," as all distance is measured by the time it takes to pole to a place.

Some phases of this novel amphibious life seem almost absurd to a visiting American. The American boy, whether he is 14 or 40, gets a thrill from a brass band and a street parade—and so does the youth of the Spreewald. But we have distinctly American ideas about the correct uniform a brass band should wear, and we insist that a street parade shall march in the street. But the Spreewald form of celebration is wholly different. Here the members of the band dress in long black, funereal-looking coats and two-quart bowler hats; and, instead of marching, they squat in a flat boat, the bass drummer in the stern pounding away as the boat is poled along the canal!

After a wedding ceremony the bridal pair, instead of dashing away in a motor, climb into a boat and sit down beneath a canopy of evergreen twigs and flowers. Their honeymoon trip is a few hours of riding around the canals of the Spreewald followed by a boatload of musicians and friends, and by troops of children who run along the canal banks and throw flowers at them. In warm summer days

THE SPREEWALD SALUTATION: "HAVE A CUCUMBER?"



Photographs from Frederick Simpich

MUSIC IN THE SPREEWALD

This is not the American idea of how a brass band should act, but the Wends of the Spreewald like it this way (see text, page 327). The sausage-like cargo in the boat at the right is cucumbers.

they may have to run the gantlet of groups of bathers, who count it good sport to "splash" the bridegroom's new suit, as his boat passes.

The country here is too low and wet for grain, but wild hay is cut in abundance. A platform of piles is raised, high above the swampy ground, and on this the haystack is built. Boatloads of hay, moving through the many canals, look from a distance as if they were sliding curiously about the country, driven by some unseen force.

In winter the whole waterway net of the Spreewald is frozen over and becomes a veritable spider web of icy lanes and avenues. Then the Wend wears special ice-shoes, with his skates built fast to them. Aided by a light, ten-foot pole with a sharp spike in one end, the Spreewalder glides easily about his ice-bound colony, not for pleasure, but for speed and convenience. Then, too, all burdens that are carried by boat in summer are loaded on sleds.

Photograph from Frederick Simpich

A SPREEWALD EEL

An eel, a cucumber, and a piece of cherry pie is the Wendish epicure's dream of a perfect feast (see text, page 332). After 17 years of study and research, it has been discovered within recent months that the fresh-water eels of Europe breed in West Indian waters, some 4,000 miles distant. More than three years elapse between the time of their birth and their appearance in the waters of the Spree.

THE COW IS CARRIED TO PASTURE

The Wend farm boys take the family cow to and from her island pasture, in summer, in a flat-bottom boat; but in winter if a cow or pig is to be moved it is put in a crate built fast to a sled.

Old women skate to church in winter, and graceful skating girls carry lunches of smoked eels and cucumber pickles to the men who chop wood along the tree-bordered canals.

Children skate to school; the doctor and the mail-carrier go and come on skates, and the policeman (says the oldest current Spreewald joke) sleeps with his skates on.

But at certain periods in the spring and fall life here is dull and lonely. When the ice first forms, the Wend cannot push his boat through it, nor will this first thin crust support his sled. So, too, when the spring thaw sets in, he can only sit and smoke and wait, or busy himself with carving wooden dolls, geese, miniature

Photograph by A. Frankl

THE GERMAN VENICE IN SUMMER-TIME: SPREEWALD GIRLS GOING TO CHURCH

About one and a half hours' ride from Berlin, in the direction of Breslau, the train stops at Luebben, which is the starting place for an excursion to the Spreewald, a lowland crossed by the Spree River, with many side rivers and canals. The people of the Spreewald have preserved their old habits and customs, which are to be found nowhere else in Germany. The women wear a characteristic dress of bright-colored skirts and unique caps.

Photograph by A. Frankl

THE SPREEWALD LETTER-CARRIER MAKES HIS ROUNDS ON SKATES IN WINTER

Photograph from Techno-Photographisches Archiv

THE SPREEWALD BAGPIPE SEEMS TO BE A DOUBLE RELATIVE OF THE SAXOPHONE

Photograph from Frederick Simpich

IN SUMMER THE CHILDREN OF THE WENDS HAVE ONLY TO TUMBLE OUT OF BED AND ROLL INTO THE CANAL FOR THEIR MORNING BATH

When bridal parties pass in boats, it is a favorite sport of these youngsters to "splash" the helpless bridegroom.

boats, and other novelties to sell to summer tourists.

EELS, CUCUMBERS, AND CHERRY PIES

Eels, cucumbers, and cherry pies as big as prayer-rugs figure in all feasts in these Spreewald swamps.

The Spreewald eel, slim and slippery, smoked or stewed, is enshrined in the songs and traditions of this singular community. A Spreewald swamp home without its eel-traps would be like a chicken farm without chicken-coops. Whether you like stewed eel or not, you can't sit down in a tiny Spreewald restaurant without buying one; it simply isn't done! And the eels, gastronomically, are mated for life with the cucumbers!

These giant cucumbers, deadly green in shade and wickedly curved like scimitars, threaten you at every turn. Cucumbers in heaps on the river banks; punts piled high with cucumbers being poled to market at Burg or Cottbus; men, women, and children plucking, peeling, packing, or eating cucumbers, or asleep on piles of them, are always in the summer picture. You wonder the whole world could consume such uncounted tons and not succumb to international indigestion.

Even the huge cherry pies, delicious as they are, fairly overwhelm you by their stupendous size. Throughout the region big, broad-mouthed clay ovens, built apart from the houses, are busy baking these pies, and as you glide along the canals on a still day the forest air is laden with their appetizing odor.

Buxom Wendish maidens, swamp angels in knee skirts and bare legs, push and pull the pies about in the ovens with ten-foot poles, pausing now and then to recrack some old bucolic joke with a near-by Spreewald swain busy slicing cucumbers or skinning an eel.

Tourists by thousands from near-by cities flock to this quaint nook of Europe in summer; and then the Wend cashes in his cucumbers, his eels, and cherry pies, reaps a rich harvest from his oddly carved wooden geese and dolls, and takes toll for poling lovers and sightseers up and down

Photograph from Frederick Simpich

ON THEIR WAY TO SCHOOL

In place of a street car or a bus, the children of the Spreewald use this method of transportation when the waters are open. In winter they skate, the older ones often pulling the tiny tots on sleds.

the labyrinth of water lanes dividing the Spreewald into a thousand charming green isles. Here, too, all kinds of societies and *bunds* come for their outings, many walking clubs of school boys and girls coming from as far away as Berlin and Læipzig.

Once, rounding a canal bend in a deep forest, I came suddenly on a group of 30 red-bearded men, mostly bald, standing bareheaded and motionless under a great tree, all staring fixedly at a begoggled little fellow mounted on a stump.

Swarms of mosquitoes kept me slapping, and I knew others just as hungry must be working on the thirty bald-headed men standing there on that weedy knoll in the swamp. Yet not a man moved; they only fixed their gaze on the little man and waited.

Finally this leader threw up his arms, the 30 opened their mouths, and as the leader's baton cut the air they burst into the Pilgrims' Chorus! It was a Saengerbund from some neighboring town, seeking pleasure in this typically serious way. How truly that Roman spoke who said that races of men differ in habits, etc. Fancy 30 middle-aged American business men from, say, Baltimore, growing full beards and hiding out for a week-end in a Maryland swamp and singing all day!

Drawn one night by faint shouts and the light of a distant fire, I quit the village of Burg and crossed the flat fields to investigate. Reaching a high knoll, where the crowd had gathered, I found an ancient ceremony, the ordeal of fire, being observed. Pairs of young men and women, grasping hands, were running and leaping over the burning wood.

The feat was easy and safe enough unless some one stumbled. It was merely symbolical, I imagine, of some event or tradition in their history; but it seemed a solemn rite with them, the whole group shouting a set phrase in their strange tongue, as each couple leaped through the blaze.

Slaves still to some ancient superstitions, the Wends carve crude wooden figures of beasts, birds, and fishes and mount them on the gables of their humble huts.

Photograph from Techno-Photographisches Archiv

IN THE FLAX FIELDS

In springtime the delicate blue flowers of the flax patches of the Spreewald present a lovely picture. The blossoms fall after only a few hours, giving rise to the old Wend proverb, that human life is like the bloom of the flax—it quickly passes.

These images, they say, keep off evil spirits and disease and bring good luck.

Some of these old Wendish superstitions, dating back maybe 1,500 years, find their counterparts to-day in many rural American communities. For example, the Wends say that a crowing hen must be killed or she will bring bad luck. When I was a boy in Missouri I knew people there who also firmly believed this. Another Wendish belief common among other races is that when a man dies a window should be opened, so that his soul may take its flight.

If it thunders during a Spreewald wedding every one is very unhappy, for this is a bad omen.

Make a wish when you see a shooting star and the wish will come true.

During certain dances held in the spring the farmers jump up into the air, believing that the higher they jump on this occasion the higher their flax will grow.

Stewed mice will cure an alcoholic appetite, and a plague of rats is a sure sign of divine displeasure.

The dried heart of a bat killed on Christmas Eve, if carried in the pocket, will bring luck at cards.

The rattle of storks' bills comes to your ears as you approach a Spreewald village—an odd sound, like that made by a boy scraping a stick over a picket fence. When these long-legged birds nest on the roofs of houses they are supposed to bring good luck. Lightning will never strike a house while a stork is roosting on it, the Wends declare. Likewise, if a young

stork falls from the nest, it is a bad omen.

Should an old stork quit her nest, the people living in the house below should also move out at once or take the consequences. The Wends say that at Creation the birds of the world chose the stork as king, and that it thinks and could converse with men if only its tongue were longer.

THE LEGEND OF THE DWARFS

Traditions say that long ago these swamps were peopled by pigmies — men and women about the size of two-year-old children — a people who worshiped idols and who burned their dead amid singing and dancing. The more superstitious Wends declare that even now these dwarfs may often be seen in the swamps.

One legend says that an inland sea once covered much of this region, and that long ago you might still find ruins of towers and houses in the bed of the Spree. This tradition of a sunken city is very current, the story reappearing in various forms.

Once a fatal pest swept the region. In a vision the Wends were told to extinguish all fire, every spark of it, and the plague would vanish. They did so, and the pest promptly disappeared. They got fire again by rubbing dry wood together.

When children are born the stars are carefully studied, and every man's destiny is determined by the position of the planets at the time of his birth.

The Wends, before being Christianized, worshiped various objects in nature, like trees and stones. To-day the Sunday church-going parade of the women, in their short hoopskirts and queer airplane-like headdresses, is easily the most striking in all the odd life of this curious colony (see illustration, page 330).

Photograph from Frederick Simpich

WENDISH MAIDS AT THE SPINNING-WHEEL

The church I entered was packed to standing room. But the sermon, emphatic and absorbing though it seemed to the native audience, meant nothing to me, for the stalwart preacher spoke in the Wendish tongue. Even the Germans do not understand this ancient language.

A CONTENTED LOT

Among all the "little peoples" of middle Europe, the Wends are perhaps the most satisfied. The Treaty of Versailles tampered not at all with the borders of their swampy domain; nor did it seek to set them up as a new nation. They are

Photograph from Frederick Simpich

THE WEAVING INDUSTRY AT COTTBUS, IN THE SPREEWALD

The Wendish women will undertake outside work of this sort, but the men can rarely be induced to quit their tiny farms and their wood-cutting and carving in winter. Even while at work, these women cling to the queer headdress that has made them one of the curiosities of central Europe.

not a political thorn in the side of any neighbors; nor are they "red," or restless, or politically ambitious. They do not wish to invade, or to migrate, or to call any plebiscites. All they want is to be left alone—to trap eels and bake cherry pies.

Many generations in the future, perhaps, they may, by a slow process, mix with and be lost among the people about them. To-day, however, as for a thousand years past, they lurk somewhat timidly in this great swamp of central Europe, an odd, lost fragment of a tribe that was a peaceful, charming people.

As we paddled around a bend in the main canal, leaving the romantic Spreewald, we passed a stalwart, wiry Wend, leaning gracefully to his long pole like a gondolier of Venice, as he pushed a boatload of cucumbers.

ANOTHER IMPORTANT MAP

AS A SPECIAL SUPPLEMENT with the April number of THE GEOGRAPHIC, the National Geographic Society will issue a New Map of the United States in five colors (28 x 38 inches). Although of such convenient size as to be adapted to use as a wall map in the office or the home, practically every town of 2,000 inhabitants is shown, while in the less densely populated sections communities of 1,000 and less are indicated. All transcontinental and through north-to-south passenger railway lines are shown, as well as many other important railroads, while 35 automobile routes and national park-to-park highways are shown and named.

In addition to the main map, there are 16 inset maps of the principal cities of the country and their metropolitan districts. The Society believes that this will prove a distinct addition to the seven special map supplements recently issued with THE GEOGRAPHIC at a cost of $250,000.

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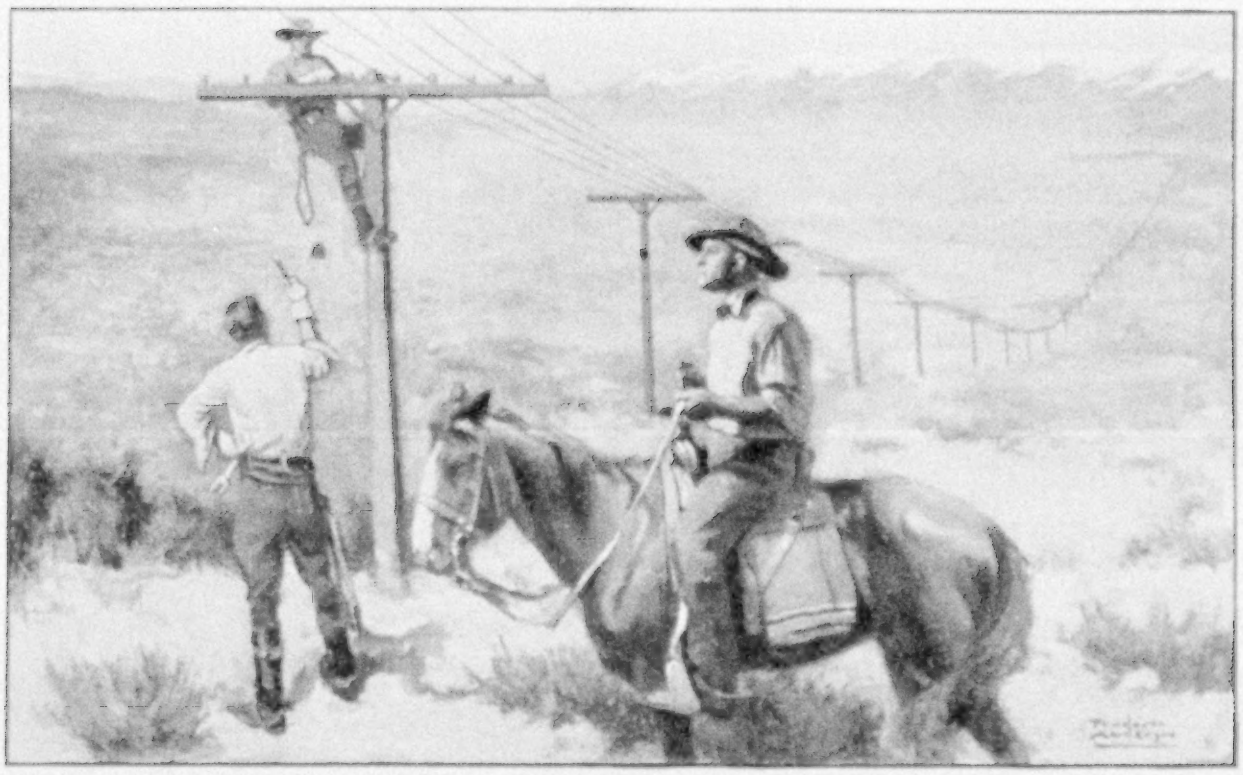

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To-day, millions of us live and make our success in places far from those where we were born, and even those of us who have remained in one place have relatives and friends who are scattered in other parts.

Again, business and industry have done what families have done—they have spread to many places and made connections in still other places.

Obviously, this has promoted a national community of every-day interest which characterizes no other nation in the world. It has given the people of the whole country the same kind, if not the same degree, of interest in one another as the people of a single city have. It has made necessary facilities of national communication which keep us in touch with the whole country and not just our own part of it.

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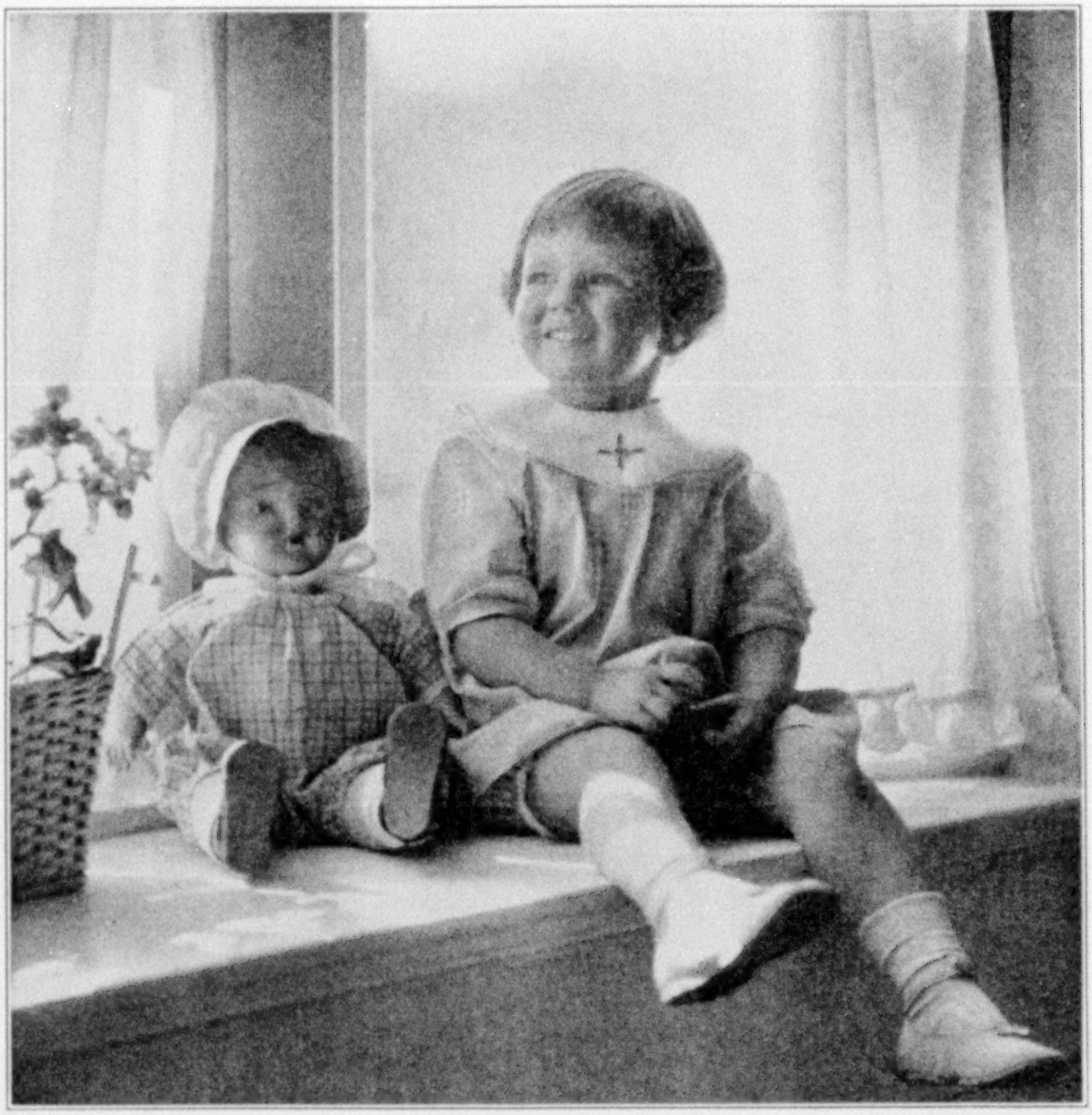

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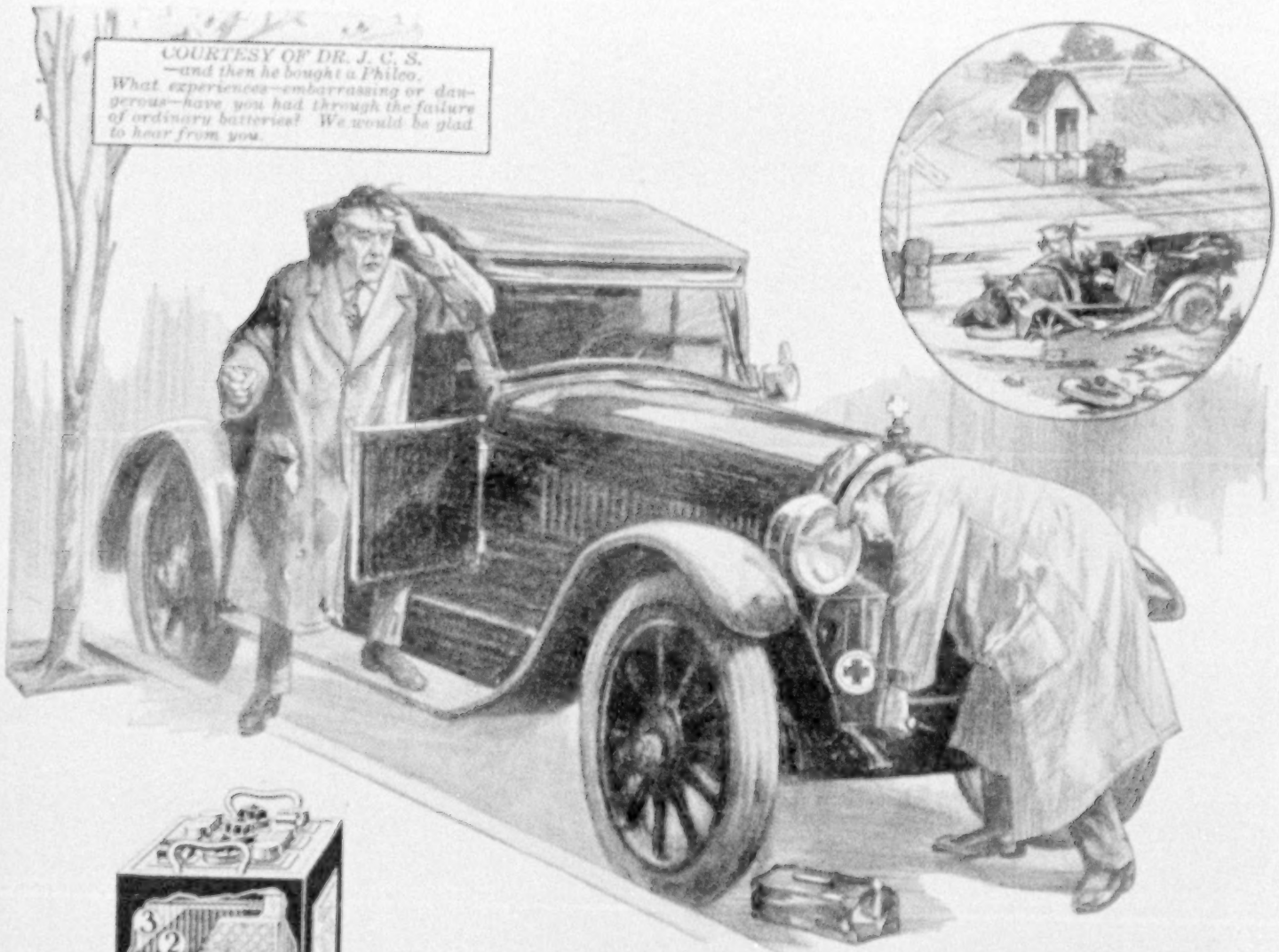

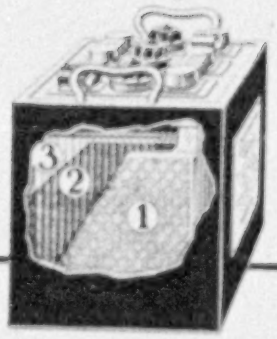

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1. The Famous Diamond-Grid—the diagonally braced frame of a Philco plate. Built like a bridge. Can't buckle—can't warp—can't short-circuit. Double latticed to lock active material (power-producing chemical) on the plates. Longer life. Higher efficiency.

2. The Philco Slotted Rubber Retainer—a slotted sheet of hard rubber. Retains the solids on the plates but gives free passage to the current and electrolyte. Prevents plate disintegration. Prolongs battery life 41 per cent.

3. The Quarter-Sawed Hard-Wood Separator—made only from giant trees 1,000 years old; quarter-sawed to produce alternating hard and soft grain. Hard grain for perfect insulation of plates. Soft grain for perfect circulation of acid and current—quick delivery of power. Another big reason why Philco is *the* battery for your car.

LOOK FOR THIS SIGN

of Philco Service. Over 5,500 stations—all over the United States. There is one near you. Write for address, if necessary.

PHILADELPHIA DIAMOND GRID BATTERY
With the PHILCO Slotted Retainer

When the cry comes—
"Hurry, Doctor, Hurry!"

No time, then, for hand-cranking an engine! It's the emergencies—the dangers and humiliations of battery failure—that make motorists realize the absolute need for dependable, unfaltering battery power. *That's why thousands upon thousands are replacing their ordinary batteries with long-life, high-powered Philcos.*

Tremendous in capacity—staunch and rugged in construction—the Philco Battery is *built* for long-lasting, trouble-free service. A touch of the starter, a whirl of the motor, and you're off—hot, fat sparks racing to your plugs—brilliant head-lights flooding the road.

The Philco Slotted-Retainer Battery—with its famous Diamond-Grid Plates and other time-tested factors of safety—*is guaranteed for two years,* but long outlasts its guarantee. *Yet it now costs you no more—in many cases less—than just an ordinary battery.*

Put a Philco in your car NOW. Safety demands the strongest, toughest, most powerful battery you can get. The nearest Philco Service Station has the right size Philco for your particular car.

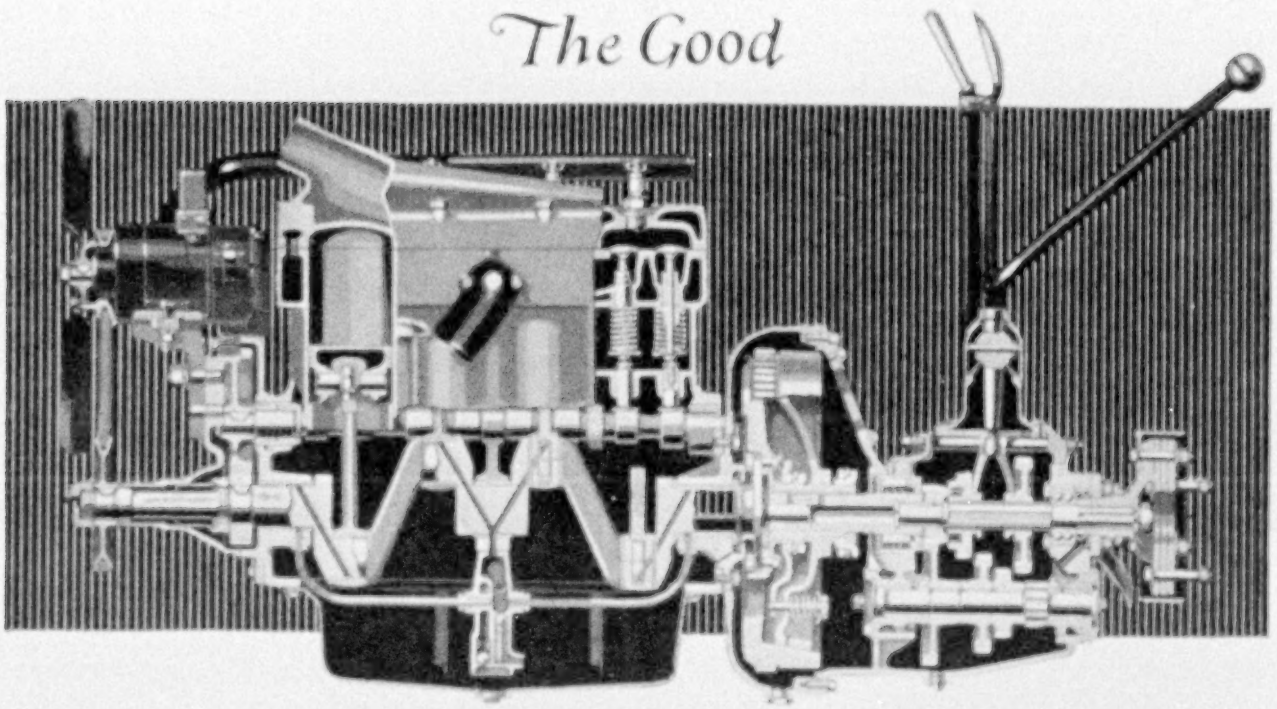
Philadelphia Storage Battery Co., Philadelphia

The famous Philco Slotted-Retainer Battery is standard for electric passenger cars and trucks, mine locomotives and other battery uses where long-lasting, low-cost service is demanded. Whatever you use batteries for, write Philco.

PHILCO
SLOTTED-RETAINER
BATTERIES

with the famous shock-resisting Diamond-Grid Plates

The Good



MAXWELL
ENGINE

An engine which incorporates high-priced quality and practice throughout, with features not found even in much costlier cars—

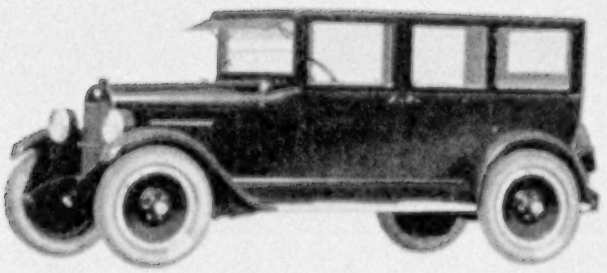
Three extra large crankshaft bearings; full pressure lubrication to main and connecting-rod bearings, through channels bored in the crankshaft; all rotating and reciprocating parts—even the flywheel—minutely balanced; pistons light-weight alloy of the split-skirt type originated by Maxwell—an engine of great power and flexibility, notably smooth, vibrationless and quiet.

The car steadily winning a larger and larger proportion of its market, for the very excellent reason that it is a *better car,* and is *proving* itself better under closest comparison.

Showing the fine results in performance, in actual savings, in long-distance reliability that can only come from the goodness which the new organization is consistently building into the good Maxwell.

Beneath the greater beauty of the good Maxwell—under the hood and the body—lie the reasons why it is outselling in constantly increasing volume.

Prices F. O. B. Detroit. Revenue tax to be added: Touring, $885; Roadster, $885; Club Coupe, $985; Sedan, $1335; Four Passenger Coupe, $1235



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is the universal machine for personal writing. It has every quality demanded by the individual user.

Compact—fits in a case only four inches high.

Convenient—can be used anywhere; on your lap, if you wish.

Complete—with STANDARD KEYBOARD and other "big machine" conveniences.

It also resembles the big machines in efficiency, for don't forget it's a Remington—with every merit for which Remingtons are famous.

Write for our illustrated, "For You, For Everybody". Address Department 65

REMINGTON TYPEWRITER COMPANY
374 Broadway, New York

Paragon Ribbons for Remington Portable Typewriters. Made by us. 50 cents each. $5 per dozen.

Sold by 2,500 dealers and Remington branches everywhere

Five New Ways

To whiter, cleaner, safer teeth

Dental science has been seeking ways to better tooth protection.

All old methods proved inadequate. Tooth troubles were constantly increasing. Very few escaped them. Beautiful teeth were seen less often than now.

Dental research found the causes, then evolved five new ways to correct them.

The chief enemy

The chief tooth enemy was found to be film—that viscous film you feel. It clings to teeth, enters crevices and stays.

Food stains, etc., discolor it. Then it forms dingy coats. Tartar is based on film. Most teeth are thus clouded more or less.

Film also holds food substance which ferments and forms acids. It holds the acids in contact with the teeth to cause decay. Germs breed by millions in it. They, with tartar, are the chief cause of pyorrhea.

Much left intact

Old ways of brushing left much of that film intact, to cloud the teeth and night and day threaten serious damage.

Two ways were found to fight that film. One acts to curdle film, one to remove it, and without any harmful scouring. Able authorities proved those methods effective. They were embodied in a tooth paste called Pepsodent, and dentists the world over began to urge its use.

Other essentials

Other effects were found necessary, and ways were discovered to bring them. All are now embodied in Pepsodent.

Pepsodent stimulates the salivary flow—Nature's great tooth-protector.

It multiplies the alkalinity of the saliva. That is there to neutralize mouth acids, the cause of tooth decay.

It multiplies the starch digestant in the saliva. That is there to digest starch deposits on teeth which may otherwise ferment and form acids.

It polishes the teeth so film less easily adheres.

Prettier teeth came to millions

One result is prettier teeth. You see them everywhere—teeth you envy, maybe. But that is only a sign of cleaner, safer teeth. Film-coats, acids and deposits are effectively combated.

Send the coupon for a 10-Day Tube. Note how clean the teeth feel after using. Mark the absence of the viscous film. See how teeth whiten as the film-coats disappear.

Cut out the coupon now.

Pepsodent
PAT. OFF
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The New-Day Dentifrice

A scientific film combatant, which whitens, cleans and protects the teeth without use of harmful grit. Now advised by leading dentists the world over.

10-Day Tube Free 1054

THE PEPSODENT COMPANY,
Dept. 704, 1104 S. Wabash Ave., Chicago, Ill.
Mail 10-Day Tube of Pepsodent to

Only one tube to a family

PURPLE MARTIN HOUSE

Martins feed almost entirely on winged insects, especially the mosquito. One martin will eat a thousand a day.

Cottage style, white pine painted green and white, 28 compartments. To go on pole. 26 x 27 x 31 inches. Price $16.00. Other styles up to $78.00.

Dodson Bird Houses

RID THE GARDEN OF INSECT PESTS NOW

When the green things appear, tender plants and buds, you'll need the song birds. They are the destroyers of the insect pests. That is why you see more Dodson Bird Houses each year, why they are an important investment. ✗ These little scientific houses attract the birds season after season and help multiply these cheerful workers. ✗ Your trees, for example, need the woodpeckers. Their chisel bills and sharp tongues bore deep into the bark where insects lurk. You could not see these insects till the tree was dying! The early robin hunts March-flies! ✗ Each Dodson Bird House attracts some helpful bird. Order now from Kankakee. Mr. Dodson will gladly advise you. Save the garden, the trees and the shrubs!

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Mr. Dodson is President of the American Audubon Association

WOODPECKER HOUSE

Woodpeckers devour as many as 75 kinds of costly insects. They destroy moths, ants and spiders, and those pests that attack trees.

Of Norway pine with cypress shingles, ventilated perfectly. To attach to tree trunk. 26 in. high, 12 in. wide. Bark brown. Price $6.00.

FAMOUS DODSON SPARROW TRAP

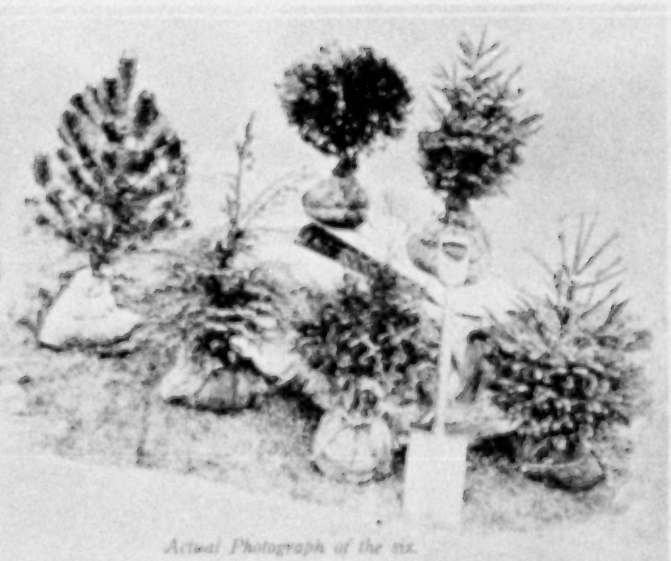
English sparrows do no work. They attack the song birds, eat their eggs and young. This sparrow trap will free your grounds of this pest.

Of tinned wire, weatherproof, 36 x 18 x 12 in. Price $8.00

FREE *Mr. Dodson's fascinating booklet "Your Bird Friends and How to Win Them" will be gladly sent upon request. It shows all the houses.*

Forty years' loving study of the song birds has completed it. A house for every bird in every clime!

A few thousand small evergreens at Glenwood Nursery.



Actual Photograph of the tree.

PLANT EVERGREENS

Special "Get Acquainted" Offer.

6 HANDSOME EVERGREENS (as shown) $10.00

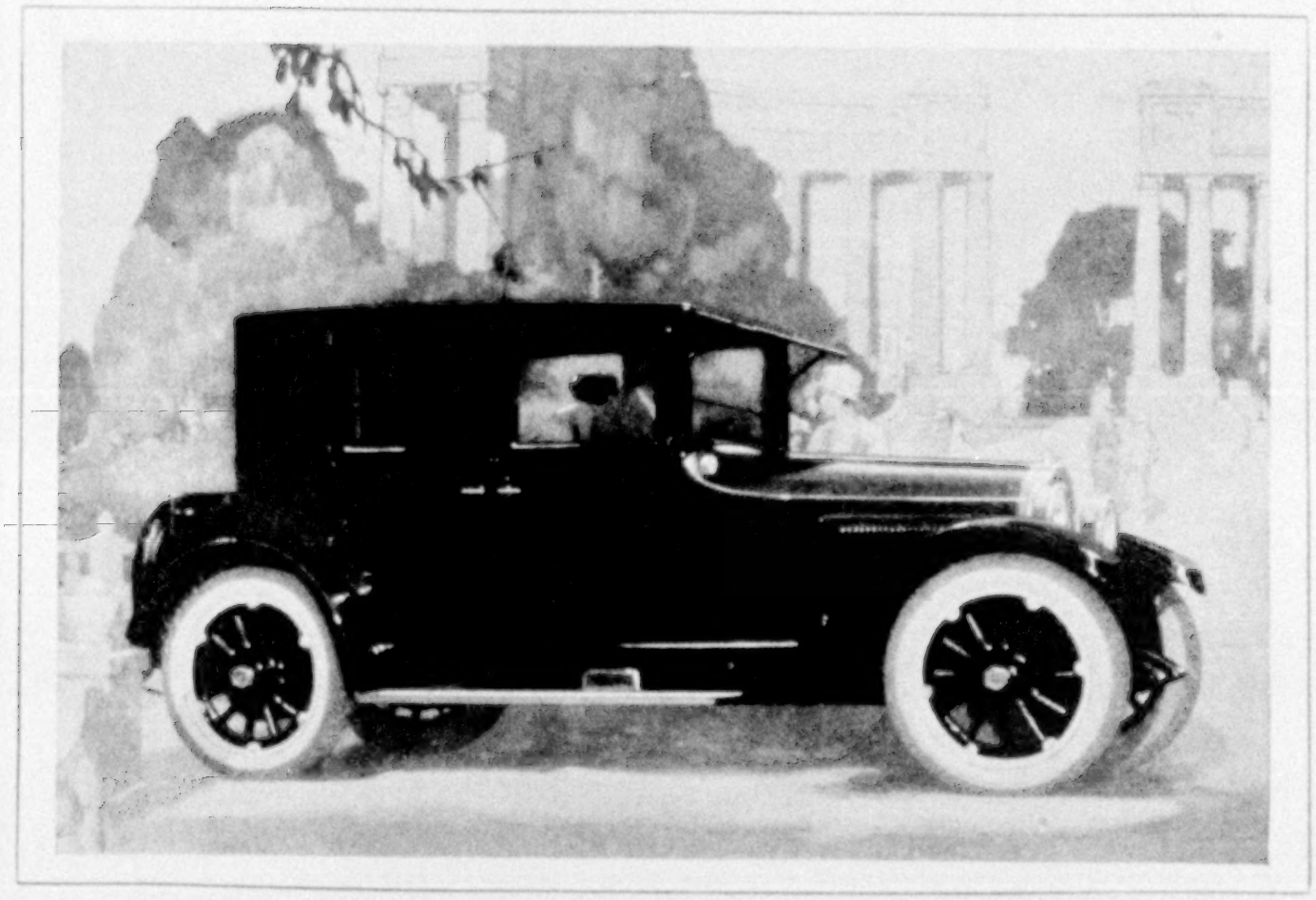
1 Austrian Pine, 2-3 feet.	1 Hovey's Arborvitae, 2 feet.	1 Balsam Fir, 2-3 feet.
1 Canadian Hemlock, 2-3 feet.	1 American Arborvitae, 2-3 feet.	1 Norway Spruce, 2-3 feet.

This *remarkable* offer will acquaint you with the *exceptional* quality of "Glenwood grown" nursery stock. Evergreen growing is but a small part of our business. We are *growers* of a complete line of fruit, nut and ornamental trees, flowering shrubs, roses, perennials, berry plants, etc.

In addition, our skilled landscape service department can handle any planting problem, however big or little. Write for our handsome catalogue in color describing fully the products and illustrating a few of these products actually growing at Glenwood Nursery, 150 acres, 57 years of service.

GLEN BROS., Inc., Established 1866, 2131 E. Main St., Rochester, N. Y.

Pittsburgh Office - - 207 Fulton Building.



The New Coupe-Sedan

THE beautiful new five-passenger Willys-Knight Coupe-Sedan *has doors both front and rear,* which dispense with the need of folding seats and give easy entrance and exit to all. The Coupe-Sedan is one of the seven new Willys-Knight models which are attracting keen public interest.

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WILLYS-OVERLAND LTD., TORONTO, ONT.

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Coupe-Sedan

The Perfect Bathroom

Built-in Fixtures for Bathroom Luxury

No one who has experienced the convenience of Fairfacts Built-in Bathroom Fixtures would willingly go back to screwed-on or portable fixtures.

Fairfacts Fixtures are built right in the walls. They not only add greatly to the appearance of the bathroom, but have the advantage of being out of the way. Fairfacts Fixtures are made of china. They are proof against stains, cracks or check marks and they are very easily cleaned by a damp cloth.

Every need of the modern bath has been anticipated in Fairfacts Fixtures. They include towel holders, paper holders, soap holders, shelves, tooth brush and tumbler holders, safety grips, electric radiators.

May we send you our book, "The Perfect Bathroom"? It will be of especial value if you contemplate building.

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Manufacturers
DEPT. N, 234 WEST 14TH STREET,
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The Standard for over half a century

Fine, Medium, Stub and Dome pointed

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Spencerian Pens are as tried and true as your old copy-book axioms. They are better than ordinary pens because they write smoother and last longer. We want you to know the superiority of Spencerian Pens.

Send 10 cents for ten different sample pens and that fascinating 32-page book, "What Your Hand Writing Reveals." Then pick your style.

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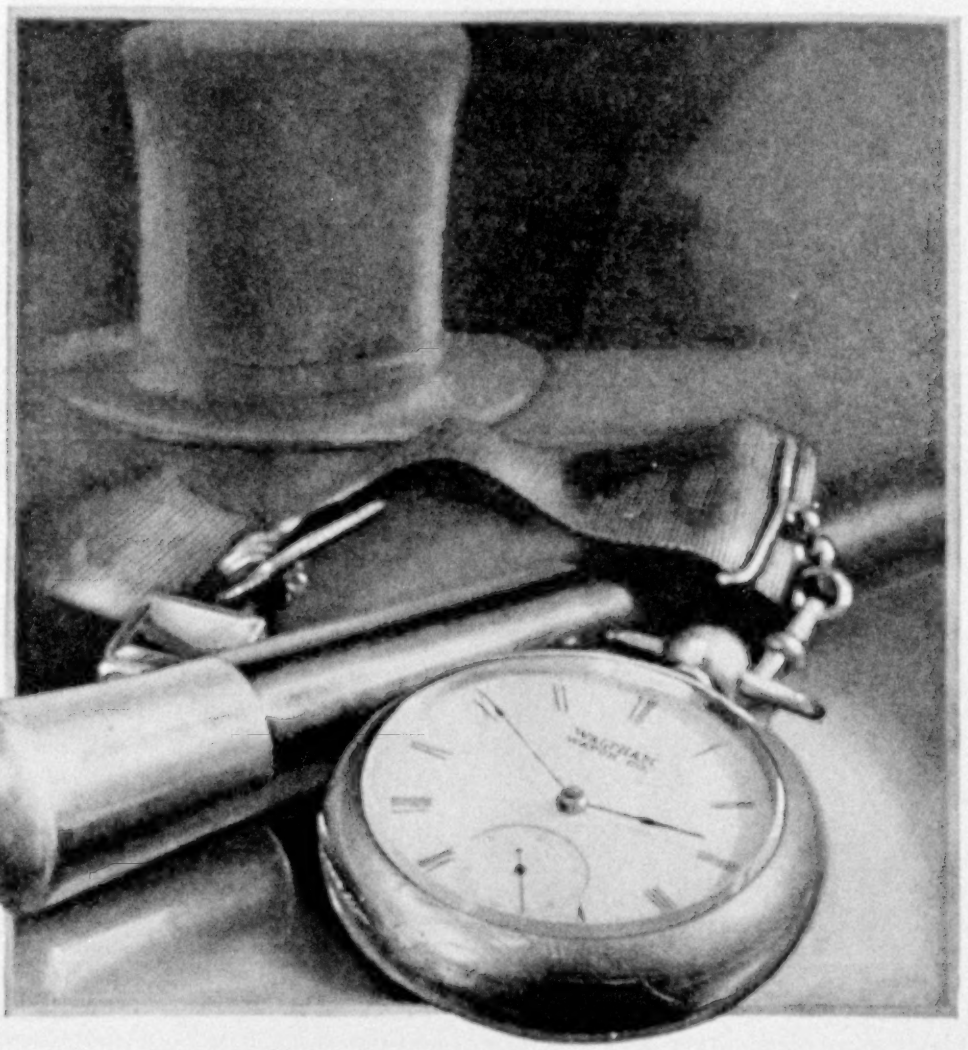
349 Broadway, New York

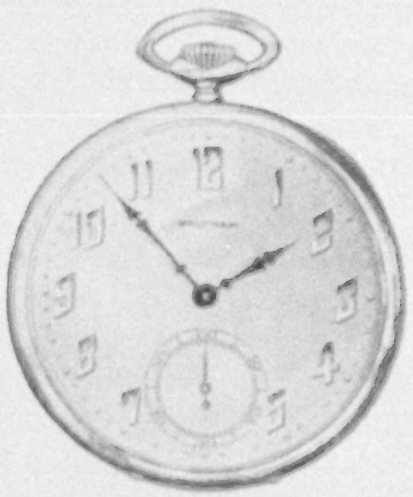


Granddad's WALTHAM ticked off the stirring minutes of "Sixty-two"

THERE is a degree of assurance that accompanies the purchase of a Waltham Watch that outweighs any claim concerning its mechanical fitness or its ability to keep faith with you and TIME. It is that the organization *behind* your modern Waltham was at the forefront in American watch-making seventy years ago—that there is nearly a century of accumulated knowledge, experience and REPUTATION between the first Waltham and yours.

Any reputable jeweler will be able to show you a Waltham Watch that will meet your requirements.

WALTHAM WATCH COMPANY, Waltham, Mass.



21 Jewel
542B — Colonial "A". Raised gold figure dial, plain case. Maximus movement . $225

WALTHAM

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THE SWEETMEATS OF KINGS

A Biscuit for Everybody's Taste

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By Appointment to King George V.

BISCUITS! Really confections—these crispy, luscious morsels of such smooth creaminess they fairly melt on your tongue.

With great confidence we offer this famous assortment, made by the unrivalled house of Huntley & Palmer, known thruout the world for their irreproachable products.

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PUTTING a Colgate "Refill" Shaving Stick into the "Handy Grip" is very simple, and it is done in a few seconds.

The "Handy Grip" lasts for years. "Refills," threaded to fit it, cost you the price of the soap alone. There is no waste.

In addition to its *handiness,* and the economy it enables you to practice, Colgate's makes a copious lather that softens the beard *at the base,* where the razor's work is done.

It leaves the face smooth, cool, and refreshed.

Send us 10c for the "Handy Grip," the metal container, and a trial-size shaving stick. Then buy "Refills" anywhere, as you need them, for the price of the soap alone. Three months' easy shaving in each "Refill," for less than the price of a day's cigars.

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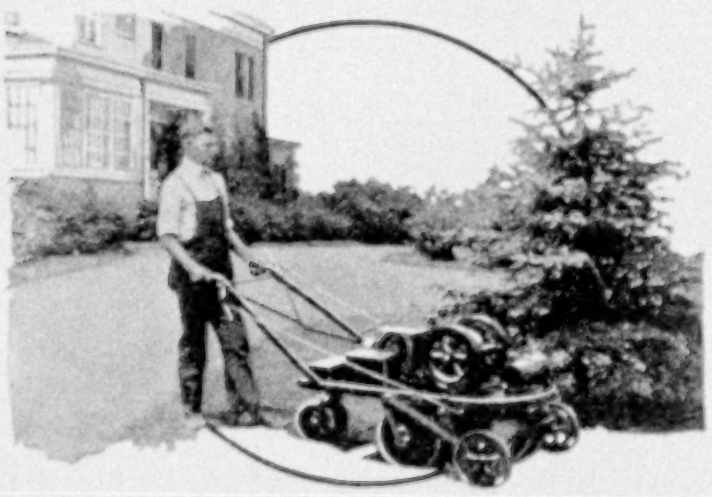
WAR DEPARTMENT



A carpet-like lawn adds much to the value of a fine home. Ideal Power Mowers maintain such lawns at low cost by cutting them evenly and rolling them to velvety smoothness in one operation.

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Dealers in all Principal Cities

IDEAL (21)
Power Lawn Mowers

On maps has man recorded progress

TO Columbus, whose voyages opened new visions of the world, America was forever India —the land of gold and rich eastern trade routes. Came Balboa, who discovered the Pacific. Came Magellan, whose expedition sailed way round the world. The map grew in consequence.

Other explorers and colonizers —Raleigh, Marquette, Drake, John Smith—devoted their fortunes and lives to gaining knowledge and putting it onto maps. But the job was not done. Man pushed on and on through the centuries, ever penetrating the unknown. Lewis and Clark, Livingstone, Roosevelt, all conquered danger and contributed to the document that is a map.

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3-23

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H952½ Shower with Anyforce Head is shown on the left. The other is the H965 Shower and Needle Bath.

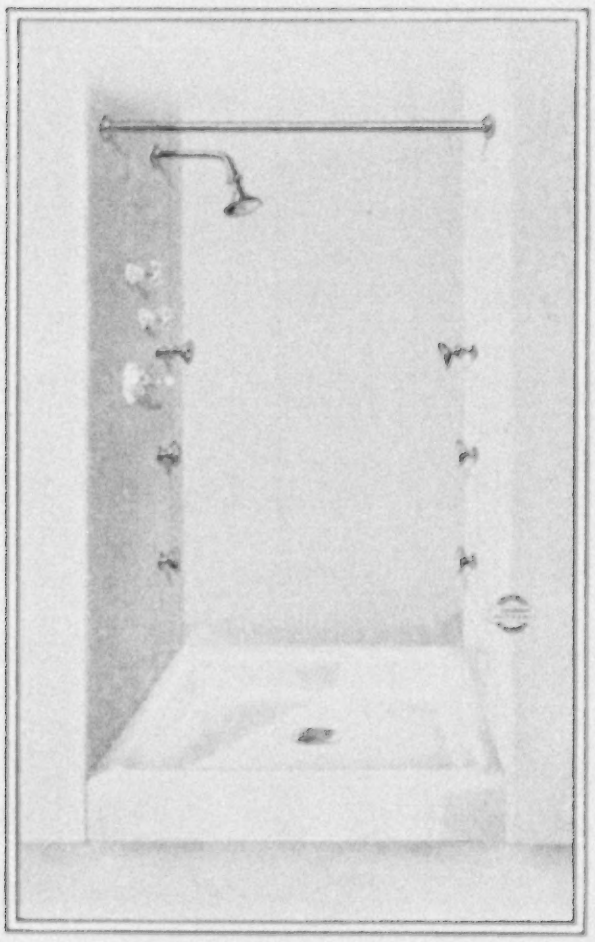
THERE'S something about running water that appeals to all mankind—and womankind. It is suggestive of things that are fresh and clean. Possibly this is the reason why shower bathing soon becomes a fixed habit.

You use the water once and it runs off—

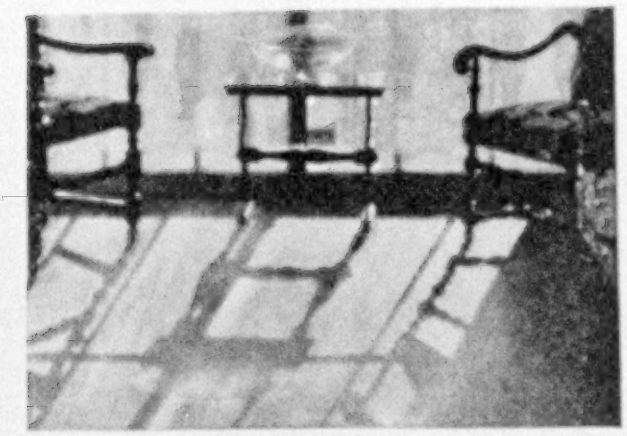
You are clean, delightfully so; and your muscles and skin have been massaged by scores of sparkling, invigorating sprays.

You will be interested in our booklet, "Once-Used Water." It is illustrated with various types of SPEAKMAN Showers and Fixtures for all kinds of bathrooms. When you write, would you mind mentioning your plumber's name?

SPEAKMAN COMPANY
Wilmington **Delaware**



SPEAKMAN SHOWERS



A Floor of Captive Sunlight

What can you find more appropriate for a sun parlor than a flooring which holds in itself the airy, golden spirit of sunlight? Maple, varnished, gives you such color. For cheerful lightness, it is ideal, whether used in a home, hotel, apartment, or luxuriously appointed club house.

And yet, this is only one of Maple's virtues. It is the wood which outwears stone. Tough of fibre, tight of grain, it leads the list in resisting the rigorous service in hallways and servants' quarters, kitchens, schools, offices, churches, industrial and public buildings.

For Color—Beech and Birch

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Maple, Beech and Birch floorings—all three—are manufactured from the slow-growth, climate-hardened timber of Michigan and Wisconsin, and guaranteed in grade and quality by the trade-mark MFMA.

"Color Harmony in Floors"

—is the title of a book, just off the press, which will open delightful new decorative possibilities to you. Ask your lumber dealer for a copy, or let us send you one with our compliments.

Maple Flooring Manufacturers Assn.
1044 Stock Exchange Building, *Chicago*

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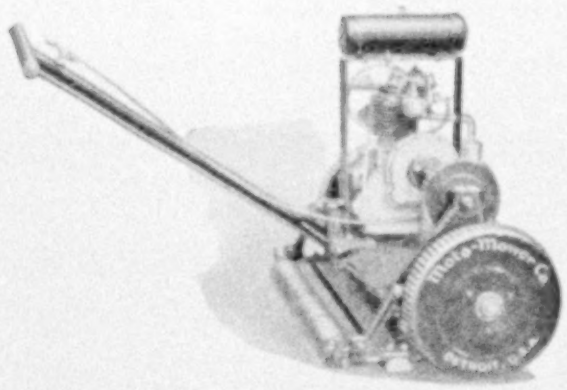
The letters **MFMA** on Maple, Beech or Birch flooring signify that the flooring is standardized and guaranteed by the Maple Flooring Manufacturers Association, whose members must attain and maintain the highest standards of manufacture and adhere to manufacturing and grading rules which economically conserve every particle of these remarkable woods. This trademark is for your protection. Look for it on the flooring you use.

MFMA

Floor *with* Maple
Beech *or* Birch



Keeps Grass Well Cut

The Moto-Mower is a real grass cutter. Compact and easy to operate. Anyone can use it. No expert mechanics are needed to keep it running. Turns corners on its own power—a feature that any power lawn mower user will appreciate.

Write us today for the latest catalogue and full information about the new model Moto-Mower.

The Moto-Mower Co.

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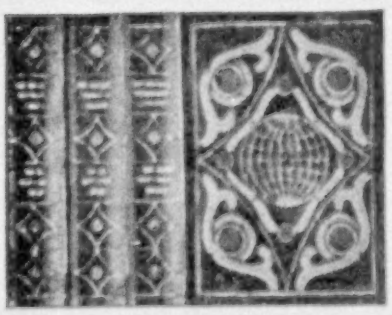

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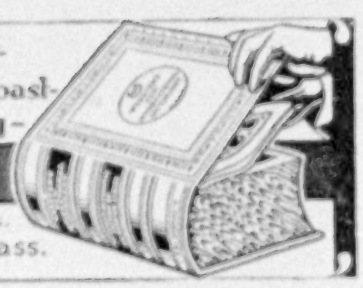

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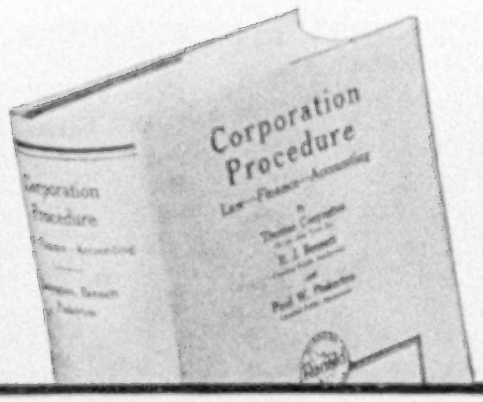

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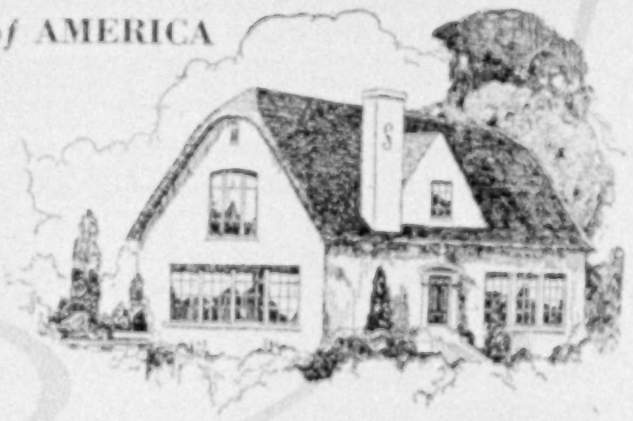

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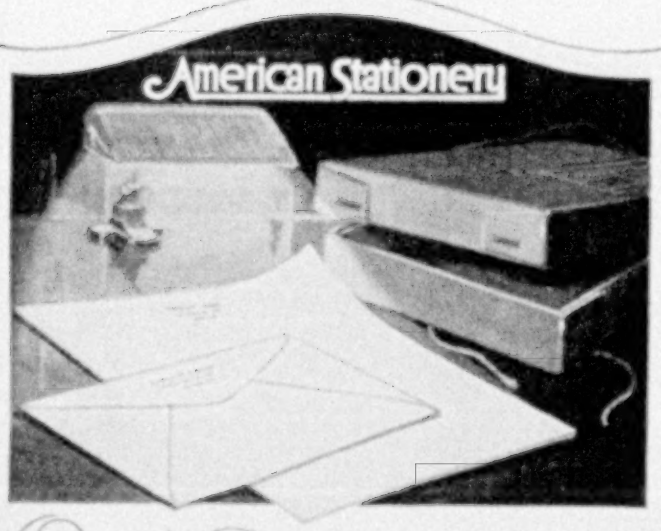

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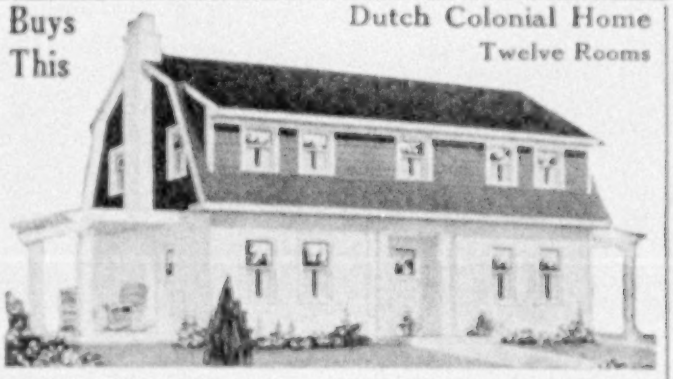

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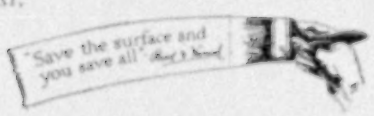

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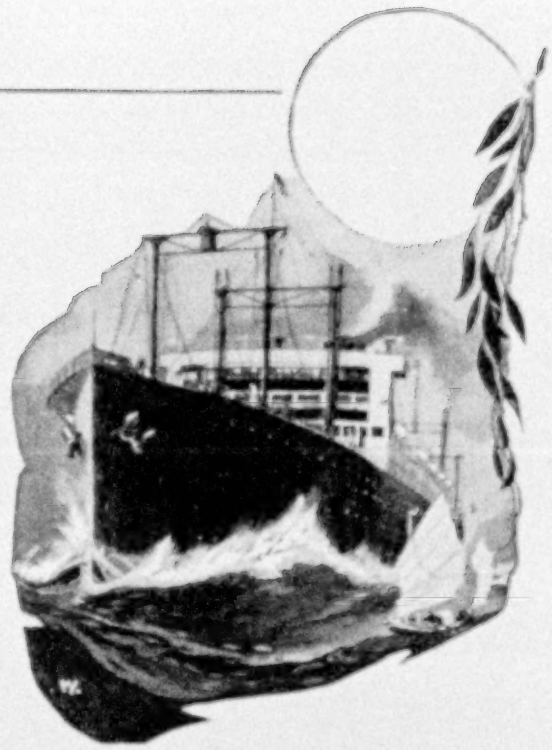

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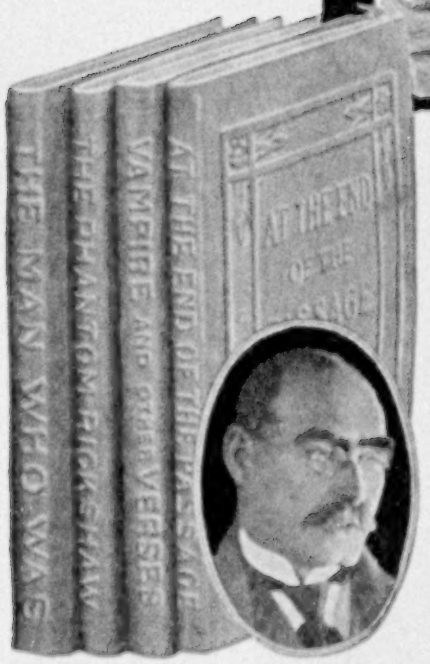

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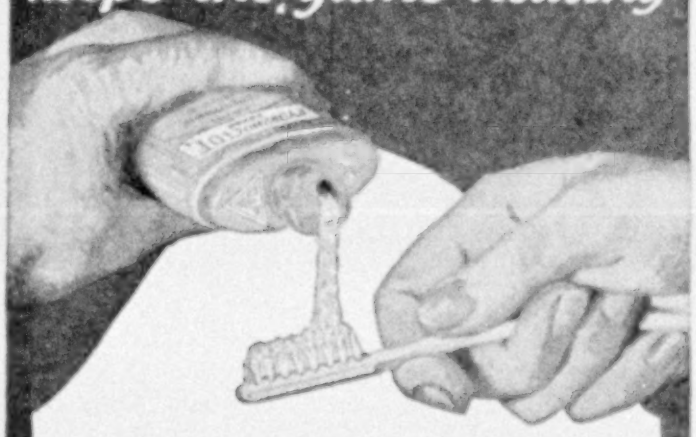

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This book is a sure guide to success in "making things grow." An acknowledged authority on everything pertaining to gardening. It offers the best Vegetable and Flower Seeds, Lawn Grass and Agricultural Seeds, Garden Tools and Implements, Fertilizers, Insecticides, etc. Also Plants of all kinds, including the newest and best Roses, Dahlias, Hardy Perennials, Garden and Greenhouse Plants, Bulbs, Hardy Climbers, Hardy Shrubs, Water Lilies and Aquatics, Small Fruits, etc.

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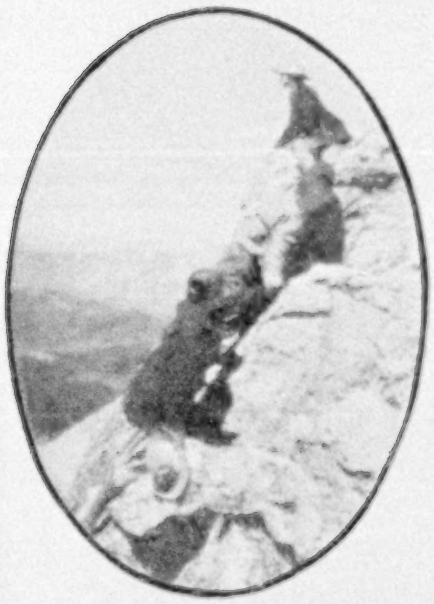
A hundred vacation spots in one
Fascinating Colorado



Whoever you are—whatever your play-time hobbies, your vacation fancies—you'll find glorious fulfillment in Colorado's mountain wonderlands. There you can climb the snow-capped peaks; hike, ride, golf, tennis, fish; or just rest and loaf in quiet wild-flower valleys and breathe the tonic air of the pines.

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So easily within your reach, too; only a day and a night west of Chicago or St. Louis on the hospitable, dependable Burlington. Two weeks, if that is the limit of your time, will permit a real vacation—one you will never forget. Your local agent will be glad to help you plan, and give you an estimate of the cost. You will be surprised to learn how cheaply you can make the trip.

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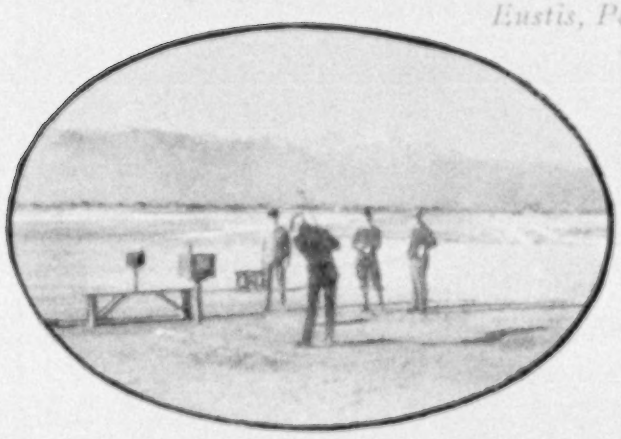
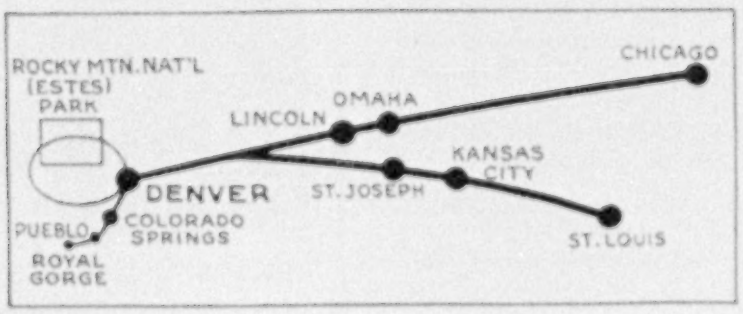
"Scenic Colorado and Utah," to P. S. Eustis, Pass. Traffic Mgr., C. B. & Q. R. R., Chicago, Ill.



Burlington Route

The National Park Line

Railroad fares were sharply reduced last year, and the reduction still prevails this year. Now is the time to vacation *West!*



Everywhere West via the dependable Burlington—the route of Comfort, Courtesy and Convenience.

When Benj. Lowe came to himself

The doctor shook his head.

Lowe started. He had been out of sorts lately. Couldn't sleep. Nothing agreed with him. He knew he was not himself.

That night, for the first time in his hard-working, rushing life, Lowe came to himself. No vacations for ten years. Heavy responsibilities. Making money? Yes. Now on the verge of breakdown. What was it all worth, anyway?

And then his eyes fell on a booklet his worried wife had sent for. It was "Man-Building in the Sunshine-Climate." Idly, Lowe glanced at it, then a paragraph caught his attention.

Proof of Climate

"There is adequate proof of the restorative qualities of the climate. At least one-half of the present population of Tucson came for health reasons. Hundreds of permanent residents state that they have regained perfect health and now remain from choice."

"Straight from the shoulder, that," thought Lowe. "Present their own citizens as evidence. That's enough for me."

What Three Months Did

The next Monday Lowe left for Tucson. Today, after three months of golf, horseback-riding, motoring, hunting, and rest in the warm sunshine, he is ready to go back, *rebuilt physically*. He feels like twenty. "Nerves" have disappeared. His step is brisk.

Lowe's story (it is true) is typical of many business and professional men who are finding in Tucson physical refreshment and new strength.

The Clue to Health

Perhaps you, like Lowe, may find in "Man-Building in the Sunshine-Climate" the clue to robust health. The booklet is ready for you. Reading it may alter the course of your whole life. Tear off the coupon now and mail it.

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National Geographic Society, Washington, D. C.

New York Life Insurance Co.

(Incorporated under the Laws of New York)

346 BROADWAY, NEW YORK, N. Y.

Seventy-eighth Annual Statement

TO THE POLICY-HOLDERS:

As the Company becomes larger it becomes increasingly important that you should better understand your relation to it and better appreciate what you as a policy-holder really own, and what your property is doing for you and for others. Here we are—mutual, no stock, no dividends except to you, no division in purpose, just a general plan to stand by each other against the vicissitudes of life and against that certain but unknown date when our obligations to our families will mature.

We together, approximately 1,500,000 of us, stand pledged to help each other, and our dependents, to the extent of $4,000,000,000. As the laws of Life Insurance figure it, our present liability is $788,236,317.00. We have in hand, accumulated as a sinking fund with which fully to redeem these mutual pledges, just under $1,000,000,000. See balance sheet below.

This is a great property. Your policy represents your share in that property; your policy IS PROPERTY. Do you own a piece of Real Estate? Your Real Estate is not so certain in its value as your Policy in this Company. Do you own a Bond? The best Bond is no more certain than your Policy, and lacks its EMERGENCY POWER.

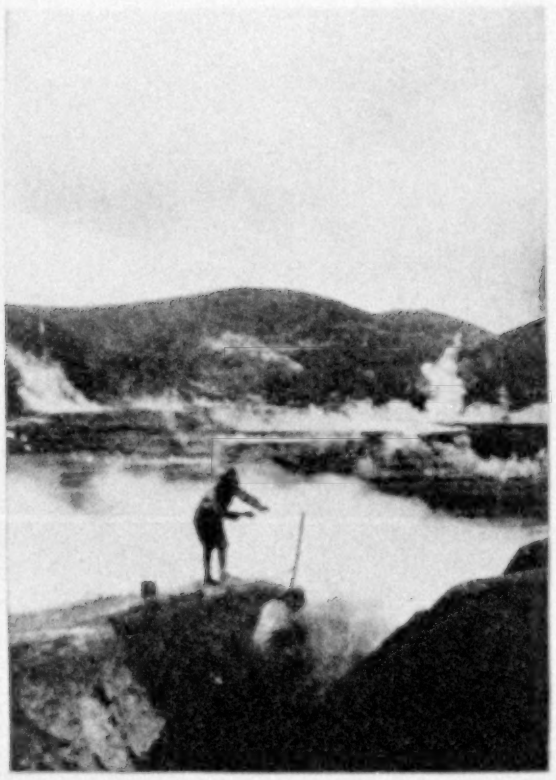
You bought your bit of Real Estate, your Bond and your Life Policy for the same purpose—to protect your dependents, to protect yourself, in old age. Your Life Insurance Policy is as certain as your Bond, more dependable than your Real Estate. This property is being distributed almost as fast as it accumulates under an increasing business. In 1922 we paid you (policy-holders and beneficiaries) $130,143,274.58.

DARWIN P. KINGSLEY,
President.

Balance Sheet, January 1, 1923

Bonds at Market Value, as Determined by Insurance Department, State of New York

ASSETS		LIABILITIES	
Real Estate owned	$8,238,684.28	Policy Reserve	$788,236,317.00
First Mortgage Loans—		Other Policy Liabilities	22,747,657.36
On Farms	57,592,277.53	Dividends left with Company to Accumulate at Interest	10,492,741.71
On Residential and Business Properties	143,070,999.93	Premiums, Interest and Rentals prepaid	3,508,893.64
Loans on Policies	166,099,516.84	Taxes, Salaries, Accounts, etc., due or accrued	7,452,155.33
Bonds of the United States	115,370,340.00	Additional Reserves	7,946,366.00
Railroad Bonds	285,079,312.14	Dividends payable in 1923	48,769,410.67
Bonds of other Governments, of States and Municipalities	152,583,974.81	Reserve for Deferred Dividends	39,310,473.00
Cash	8,816,310.47	General Contingency Funds not included above	60,088,196.25
Other Assets	51,700,794.96		
Total	$988,552,210.96	Total	$988,552,210.96



Putting Supper to Cook Over a Fumarole

The Valley of Ten Thousand Smokes

By Robert F. Griggs

Leader, Katmai-Alaska Expeditions of the National Geographic Society

LIVING on the very lid of a volcano with these explorers, the reader overcomes conditions hitherto unfaced by modern men. He braves skin-removing pumice storms, cooks his baked beans over a volcano, makes his way over a thin crust amid millions of fumaroles, and camps for weeks over a cauldron of boiling mud.

FOR here the world is actually in the making. Molten rocks and minerals are being spewed up from the depths to make a new earth crust and Nature is working to bring back grass and flowers to a once fertile area, transformed in a few hours into a desert of burning sand.

YET, within a few yards of incandescent baby volcanoes are ice caverns where meat may be kept frozen. Not many miles away is some of the Continent's most magnificent scenery—now a National Monument by Presidential proclamation and so the property of every American.

350 pages; 262 engravings and color plates; 7 special maps. $3 postpaid in U. S. Foreign postage 25c

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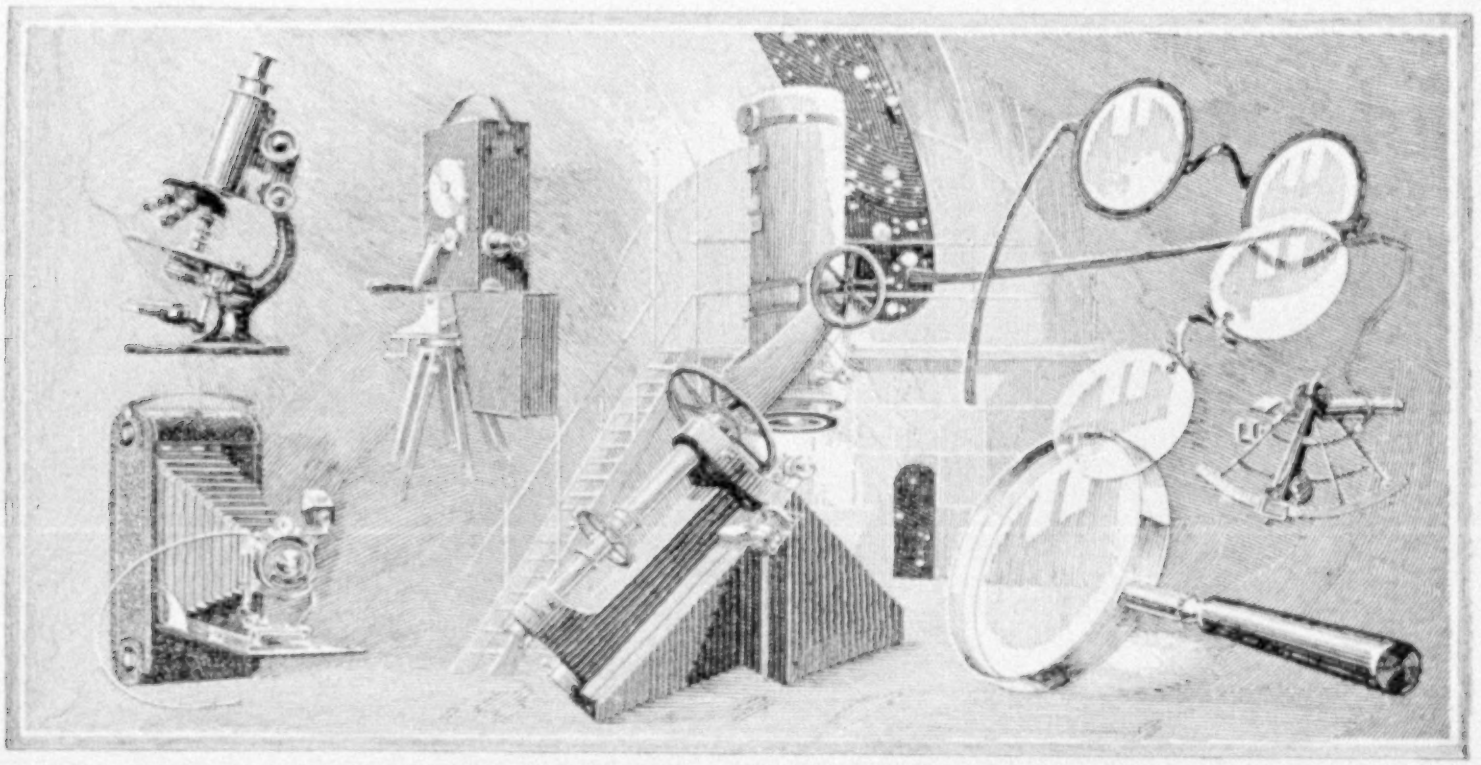


How lead helps you see

THE use of lead in lens-making has made the planets in the universe objects as familiar to astronomers as are the chickens in a barn-yard to a farmer's wife.

The microscope lens, containing lead, has enabled science to count and classify bacteria so small that millions can live in a drop of milk.

There is lead in the telescopic lens of the sextant with which the navigating officer determines his latitude and longitude and plots the course of his ship.

How lead gets into glass

Ordinary lead is melted at a very high temperature. On cooling it falls into buff-colored flakes. This is litharge, a lead oxide. Reburning and recooling the litharge gives an orange-red powder, called red-lead, another oxide of lead. Litharge or red-lead melted with silica (fine white sand) and potash or soda unites with these materials and forms clear glass.

Lead gives to this glass the quality necessary for properly refracting or bending the rays of light, so that the magnifying power of the glass lens is enormously increased.

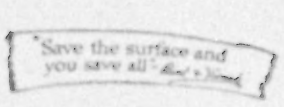
Thus with the help of lead the courses of stars and comets are revealed. The length of days and seasons, the tides, even the weather, can be known in advance. With the help of magnifying lenses man has developed the serums that protect humanity against diphtheria, typhoid, and other diseases.

Lead in other lenses

The same lead is used in making the moving-picture lens, and the glass lenses of ordinary cameras, of spectacles, eye-glasses, and reading glasses.

Paint needs lead

The most widely known use of lead and its products is, however, in making paint. It is white-lead that gives to good paint its ability to last long and adequately protect the surface.



Property needs paint

Until recently many people did not realize as fully as they should that by keeping the natural destroyers away from their property they prolonged its life. Today, however, they are acknowledging the wisdom of the phrase, "Save the surface and you save all." And they are saving the surface by painting with white-lead paint.

What the Dutch Boy means

NATIONAL LEAD COMPANY makes white-lead and sells it, mixed with pure linseed oil, under the name and trade-mark of *Dutch Boy White-Lead*. The figure of the Dutch Boy you see here is reproduced on every keg of white-lead and is a guarantee of exceptional purity.

Dutch Boy products also include red-lead, linseed oil, flatting oil, babbitt metals, and solder.

Among other products manufactured by the National Lead Company are battery litharge, battery red-lead, pressure die castings, cinch expansion bolts, sheet lead, and Hoyt Hardlead products for buildings. It also manufactures lead for every other purpose to which it can be put in art, industry, and daily life.

More about lead

If you use lead, or think you might use it in any form, write to us for specific information; or, if you have a general academic interest in this fascinating subject and desire to pursue it further, we will send on request a list of books which describe this metal and its service to the civilized world.

NATIONAL LEAD COMPANY

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Those schooled in the ownership of fine cars pay high tribute to LaFayette performance.

They frankly state it to be the finest in all their motoring experience.

And as is its due, this performance has its proper setting.

Each phase of LaFayette design and workmanship marks it as a car built for those who love fine things.

LAFAYETTE MOTORS CORPORATION
MILWAUKEE, Wisconsin

LAFAYETTE

Once or twice a week for nearly fourteen years, Mrs. Maertz has beaten, swept and suction-cleaned her rugs with The Hoover. She has twenty-four rugs; the newest are twelve years old, while the oldest are eighteen. And she keeps roomers.

Even her 18-year-old rugs are still in good condition

"My rugs are frequently admired for their bright and clean appearance, yet I never have to pay to send them out for cleaning—*I use The Hoover.* People can scarcely believe it when I tell them the age of my rugs, for nothing is harder on your rugs than roomers."

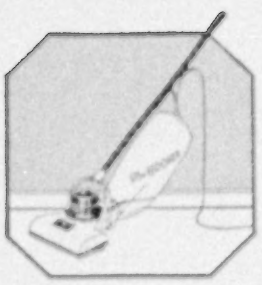
And Mrs. Wm. F. Maertz, whose house at 880 First St., Milwaukee, is pictured above, adds: "I have been told by people who knew nothing about The Hoover that it was injurious to rugs. My own experience causes me to believe that rugs not Hoover-cleaned wear out twice as fast. I know that The Hoover has paid for itself over and over by making my rugs last many years longer—and it makes sweeping a pleasure."

Surely she is qualified to speak with authority!

"Some of my friends," continues Mrs. Maertz, "liked my Hoover so well that they sold their cleaners and bought Hoovers. Others are sorry they didn't know about The Hoover before buying. Many people are satisfied with their cleaners until they see The Hoover work. "Personally I have tried other cleaners and am convinced I would have no other."

Write us for names of Authorized Dealers who will gladly demonstrate The Hoover on your rugs—no obligation. On the divided payment plan, 17c to 23c a day soon pays for a Hoover

THE HOOVER COMPANY, NORTH CANTON, OHIO
The oldest and largest makers of electric cleaners
The Hoover is also made in Canada, at Hamilton, Ontario



The HOOVER

It BEATS ... as it Sweeps as it Cleans

PRESS OF JUDD & DETWEILER, INC.
WASHINGTON, D. C.

What bird flies 120 miles an hour?

What plant lives on insects?
How many eggs does a humming bird lay?
How long does it take for a butterfly to develop?
What tree is the woodman's defense against death by cold and starvation?
Where does the whippoorwill build its nest?
What is the first wild flower to bloom?
What is the difference between a butterfly and a moth?
Do trees really breathe?
What bird is the first to go south?
What bird eats one and one-half times its own weight every 12 hours?
What plant kills animals if they eat it?
What bird hangs a snake's skin on its nest to ward off enemies?

THOMAS A. EDISON LUTHER BURBANK HENRY FORD

JOHN BURROUGHS

You, too, will find your happiest hours among friends of forest and field

NATURE abounds with magic. For those who know its language, a wonderful story is told by the simplest roadside flower. The fields and forests are filled with a host of friends—the birds, the butterflies, the flowers, the trees—each with its own individuality, its personal charm.

To know Nature is to love it—you find an endless fascination in its wondrous workings; you become absorbed in its extraordinary mysteries; you constantly discover new and curious phenomena; you see new meanings in each changing season. Every stroll through the out-of-doors is filled with never-ending interest; the countryside becomes a veritable Fairyland, teeming with enchantment, peopled with the most interesting folk you ever knew.

You, too, will find your happiest hours among your friends of forest and field, just as have such famous men as Theodore Roosevelt, Thomas A. Edison, John Burroughs, Henry Ford, and Luther Burbank. These men, with the means to command any form of recreation, found nothing so enjoyable as their understanding and appreciation of Nature.

This rare pleasure awaits *you* now in the delightful pages of The Little Nature Library—the beautiful four-volume set that brings to you the whole wonder world of Nature's secrets.

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Address_____

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By sending cash with order you can secure this set for only $7.00. (Orders outside U. S. are payable cash with order.)